

APPENDIX

Notes For FOMC Meeting
August 20, 1991
Sam Y. Cross

Today the dollar is trading near its levels at your last meeting--today it is about 1-2 percent lower than at that time--but there have been four significant moves in the meantime. First, in early July, the dollar rose to over DM 1.84 on optimism about prospects for the economy and pessimism about the German investment outlook. Second, on July 12 the Bundesbank engineered a convincing round of intervention to support the mark which brought the dollar back below DM 1.80. Third, the dollar then softened for a few weeks to DM 1.70 in response to a string of worse-than-expected reports on the U.S. economy and in anticipation of a tightening of German monetary policy. And fourth, at the end of the period, the dollar strengthened on a smaller-than-expected tightening of monetary policy by the Bundesbank, and more importantly, in response to the coup in the Soviet Union. Let me comment briefly on each of these four moves.

First, on the dollar's strength against the mark at the outset of the period, the optimism about the U.S. recovery was based on a number of reports released in June and through mid-July--notably increases in the Purchasing Managers index, higher factory orders and lower jobless claims--which encouraged market participants to forecast a fairly robust recovery and to think that no further monetary policy easing would be needed. But there were also developments in Germany and eastern Europe which were viewed as negative for the mark: specifically, the fears in German capital markets about the possible reimposition of a withholding tax on interest income, unrest in Yugoslavia, and finally concerns about rising inflation and the

failure of the Bundesbank to raise official rates before its summer recess.

In that environment, the dollar rose close to its highs for the period on July 11 after the Bundesbank left interest rates unchanged at its council meeting that day. In response, on July 12 the Bundesbank initiated several rounds of intervention, starting early in the morning. They were joined by a large number of other European central banks. After the New York market had opened, the U.S. monetary authorities also came in, selling \$100 million against marks, in a demonstration of cooperation. In response to the official operations, the dollar fell back over three pfennings to below DM 1.79.

The effectiveness of the July 12 intervention was attributed to several factors. First, the operation was broad based, undertaken by 18 central banks. In particular, the participation of the U.S. monetary authorities distinguished this from some previous Bundesbank-led interventions which had failed to materially affect the exchange rate. Market participants had tended to view the United States as reluctant to join in efforts to slow the dollar's rise and believed that the U.S. authorities were not particularly worried about the dollar being too strong. Nevertheless, in this instance, it became clear that the U.S. authorities thought it appropriate and reasonable to join the German-led intervention. Treasury commented publicly that there was not a problem with the general level of the dollar but with the speed of the dollar rise.

The second factor important to the success of the operations was that the total intervention was sizable, reaching almost \$1 billion, mostly against German marks. Third, market participants were impressed that the Bundesbank maintained a continuing presence in the

market on July 12, operating several times during the European day and selling a total of almost The market also observed that the United States had come in more than once, including after Europe had closed. Lastly, market participants were surprised by the timing of the move. Coming just days before the London G.7 summit, it suggested a high level of cooperation and the possibility of further coordinated action.

Accordingly, in the days that followed, the dollar remained below the DM 1.80 level. In the ensuing weeks, the dollar softened further, with the perception that the next U.S. and German monetary policy moves would be in opposite directions. Market expectations about the U.S. economy changed with sluggish growth in the U.S. money supply, lower-than-expected growth in second-quarter GNP, worse-than-expected employment reports, and the mixed assessment given in the Federal Reserve's Beige Book. On the German side, a surprising rise in inflation in July to 4.4 percent year-over-year fostered expectations of a tightening of monetary policy at the Bundesbank council meeting on August 15, and comments about Germany's increasing price pressures by incoming Bundesbank President Schlesinger served to heighten these expectations. In the event, on August 15, the German authorities raised the Lombard rate 25 basis points, which was less than expected, and the discount rate 100 basis points.

The fourth and final move of the period occurred after the change in official rates by the Bundesbank. The German move was smaller than expected, and when combined with some favorable signs about the U.S. economy, lent support to the dollar. The dollar then surged well above DM 1.80 following news of the coup in the Soviet Union.

The dollar's moves against the mark were much more pronounced than against the yen. Revelations about Japan's various financial scandals raised questions about the outlook for Japan's monetary policy and the yen. Even so, the yen did not fall precipitously as market participants concluded that Japanese financial institutions would repatriate capital invested abroad to shore up capital positions at home.

In other than our intervention operations during the period, the U.S. monetary authorities continued to adjust their foreign currency balances, through off-market sales of foreign currencies and net sales of SDRs for dollars. On July 16, the Federal Reserve and the ESF shared equally selling \$3.0 billion worth of yen to the Japanese Ministry of Finance in spot, 1-month and 2-month forward transactions, reducing the Federal Reserve's yen balances by \$1.5 billion. The exchange produces for the Federal Reserve realized profits of \$56 million.

Beginning in July, the Treasury also converted some of its mark balances into dollars, through purchases of SDRs against marks and sales of SDRs for dollars, producing a net acquisition of \$69.9 million for the ESF.

Utilizing a portion of the dollars it acquired through these various operations, the ESF unwound a \$1,000 million warehousing arrangement on August 8. Another \$1,500 million unwinding will occur on August 22. The amount of foreign currencies warehoused by the Federal Reserve will stand at \$2,000 million equivalent.

I should also report that the Treasury and the Netherlands agreed not to renew the \$500 million currency arrangement which expired on August 17, 1991. The ten-year old arrangement, set up at the time of the Iranian crisis, had never been utilized.

Mr. Chairman, I would like to request the Committee's approval of the Federal Reserve operations of the period, representing \$50 million against marks, and off-market sales of \$1.5 billion equivalent of yen to the Japanese Ministry of Finance.

Notes for FOMC Meeting
Peter D. Sternlight
August 20, 1991

For several weeks following the Committee's early July meeting, the Domestic Trading Desk sought to hold reserve conditions unchanged, consistent with an expected Federal funds rate around 5 3/4 percent. On August 6, reserve pressures were eased modestly against a background of persistent weakness in money growth, evidence of sluggish recovery and some indications of abating inflationary pressures. Consistent with a \$25 million reduction in the allowance for seasonal and adjustment borrowing, Fed funds were then expected to trade in the area of 5 1/2 percent, equal to the discount rate. Earlier in the period, the borrowing allowance had been boosted in two steps by a total of \$75 million in technical moves to keep pace with ongoing increases in seasonal borrowing. Thus the net change in the borrowing allowance was an increase of \$50 million to \$375 million.

Actual funds rates have held fairly close to desired levels, averaging a shade higher much of the time, as might be expected in a period marked by appreciable needs for reserve additions. There was a sharp rise in the funds rate at the end of the August 7 maintenance period as the large scale of reserve needs did not become evident until late in the day and the Desk could provide only a fraction of the needs projected that morning as dealer propositions were insufficient. Similarly, borrowing was fairly close to path levels over the intermeeting period,

excluding some special situation borrowing and apart from a big bulge on August 7 when unsatisfied reserve needs had to be met at the window. That day's borrowing of nearly \$5 billion lifted the two week average to about \$700 million.

Large reserve needs over the period reflected typical seasonal flows, some fairly frequent overshoots in Treasury balances at the Fed, and the impact of some off-market foreign exchange operations. The latter included both some reductions in the System's own holdings of foreign currencies and reductions in the amounts "warehoused" for the Treasury. In both the first and final thirds of the interval, the Desk took advantage of foreign account sell orders to buy bills and notes outright from foreign accounts--a total of some \$3 1/2 billion all told. In addition, the Desk arranged either System or customer repos on most days. Overnight System repos were employed on August 6 to signal the System's slightly easier policy stance--a message that the markets appreciated quickly as Fed funds were then trading at 5 3/4 percent. As it happened, there was a sizable reserve need at the time, but the Desk's choice of an overnight rather than multi-day injection left little room for any interpretation other than that a policy move was intended.

Market interest rates fell across a broad front during the intermeeting period, propelled by a combination of concerns about the strength of the economy's upturn and weakness in broad money growth measures. Yesterday morning there were sharp further rate declines in the wake of developments in the Soviet Union, but these moves were partially or fully reversed by day's

end. The System's easing step on August 6 added a bit of impetus to the downward rate move as it was only partially folded into expectations at the time. Information on various inflation measures was considered mixed over the period--favorable enough to permit a small step but still providing some caution signals as well. Views are also mixed on the likelihood of further policy steps at this point. Many see a further easing as possible, and perhaps likely, in coming weeks if the economy's rebound continues to look modest and money growth weak, but there seems to be no overwhelming anticipation of another early easing step. At the same time, some market participants who had anticipated a month or two ago that the next move could just as likely be to the firming as to the easing side have returned to a more asymmetric outlook, leaning to the easier side. Yesterday in the first flush of reaction to the Soviet news, there seemed to be, temporarily, a more imminent expectation of another easing move.

For Treasury issues, the yield declines over the period ranged from about 35-95 basis points, with the larger declines in the short-term area--out to about five years. The rate declines were mainly in the latter half of the period. In the first half, the economic data were mixed, but strong enough to confirm impressions that the economy had begun to turn upward, while looming new supplies of Treasury paper kept a damper on enthusiasm. Later, some key data were regarded as placing more doubt on the likely strength of recovery, while broad money growth looked even more feeble, and against this background the

huge outpouring of new Treasury debt seemed less formidable when it arrived. Treasury bill rates fell about 45-80 basis points over the interval while the Treasury raised about \$20 billion additional funds in the bill market. The 3- and 6-month issues auctioned yesterday at average rates of 5.17 and 5.23 percent, respectively, compared with 5.59 and 5.71 percent shortly before the last meeting.

In the Treasury coupon sector, yields were down by as much as 85-95 basis points for 1 to 3 year issues as investors seem to reach out for yield along the curve when money market yields declined to less attractive levels. At the long end, yields were down a more moderate 35-40 basis points. The yield declines were impressive considering that the Treasury raised some \$35 billion in coupon issues, about half of it in the record \$38 billion mid-August financing. Bidding was robust for the 3- and 10-year offerings, bolstered in part by the rally that followed the System's policy-easing move the morning of the 3-year auction. Possibly reflecting a view that the rally was carrying yields too far down for the moment, interest was much more subdued in the 30-year bond, although the cover was a little better than in the weak 30-year auction three months earlier. After a bit of a hiccup following the auction, which produced an 8.17 percent average and tailed to 8.19 percent, long yields declined again, briefly dipping under 8 percent yesterday morning and closing yesterday at 8.10 percent.

Late in the period, attention in the government securities market was riveted on a series of announcements by

Salomon Brothers, a primary dealer of long standing and a major market participant. The first two acknowledged that the firm had submitted unauthorized customer bids, or committed other irregularities, in several recent Treasury auctions which had the effect of circumventing Treasury limitations on the amount of an issue that could be awarded to any single entity, while the third, last Friday, noted that because of these irregularities and lapses of proper management controls, top management of the firm was planning to resign. The New York Fed stated publicly that it was closely reviewing developments at the firm, and was seeking explanations of the irregularities and oversights committed by the firm, along with a description of remedial steps to prevent a recurrence. It added that an evaluation of the firm's steps to address management control failures would be important in the Fed's review of its relationship with the firm. Further developments followed this past Sunday, with the Treasury first announcing that Salomon's ability to participate in Treasury auctions was being suspended pending review of its steps to establish proper management controls, and then following the firm's changes in top management and reassurances from the new chairman, the Treasury modified its restriction to apply just to customer bids through Salomon and not to bids for its own account.

The financial markets had other news to contend with as well. Early in the intermeeting period bank holding company paper came under some renewed pressure as concerns mounted about poor second-quarter bank earnings due to additional provisions

for loan losses. The pressures were contained, though, and subsequently bank paper came into considerably greater favor with the announcement of several mega-mergers among banks, notably including Chemical-Manny, then NCNB with C&S Sovran and more recently BofA with SecPac. These prospective mergers, and anticipations of others to come, were seen as likely to improve the long-run outlook for bank profitability so that on balance over the period there was an appreciable decline in yield spreads on bank holding company debt over Treasury yields. At the short end, the TED spread comparing bank Eurodollar costs and Treasury bills also declined. Yield spreads narrowed even for Citicorp which went through a special flurry of concern, and some deposit runs overseas, following Congressman Dingell's remark that that institution was "technically insolvent"--a comment immediately denied by Citicorp.

Concern over financial fragility also spread more noticeably into the insurance industry in the recent period, following the seizure of Mutual Benefit Life by the State of New Jersey. Credit ratings of a number of insurance companies were downgraded a notch or two and yield spreads on their debt compared with Treasury issues widened somewhat. The moves were modest, however, compared with the widening of bank holding company spreads some months earlier. Still, a background of edginess persists in the financial markets generally, and events like the revelations at Salomon Brothers do not help.

Michael J. Prell
August 20, 1991

FOMC BRIEFING -- DOMESTIC ECONOMIC OUTLOOK

I had intended to keep my remarks relatively brief this morning, in light of the extra items on the agenda. Despite the Soviet surprise, I'm going to try to stay with that plan.

I want to focus initially--and primarily--on how we saw things at the end of last week. As the Greenbook indicated, the recent news on the economy has been mixed. Attempting to balance it all out, we maintained our forecast of a moderate expansion of economic activity through 1992, but we trimmed the projected growth for the second half of this year. I wish I could claim that, with this adjustment, we now have the outlook nailed down, but my sense is that the probability distribution of possible outcomes really hasn't tightened much, if at all, in the past seven weeks--even apart from the Soviet shock.

Let me just quickly review the good news and bad news of the intermeeting period. On the plus side, one would have to point to evidence of a sustained willingness of consumers to spend and to a continuing uptrend in housing starts. Indeed, based on the retail sales data now in hand, our third-quarter forecast for consumption might be viewed as conservative. As for housing, the July starts figures arrived after we completed our forecast, and they were a bit above the level we wrote down for the current quarter.

Another bit of good news is to be found in Friday's report on merchandise trade through June. For one thing, the numbers were consistent with our belief that the Commerce Department had built an unduly pessimistic assumption into its advance estimate of second-quarter net exports. More important, the report indicated that the

uptrend in our exports of manufactured goods remained very much intact at midyear; as you know, we have projected that sustained growth of exports of goods and services will largely offset the effects of the increase in imports that is likely to accompany the recovery in domestic activity.

That trade outlook is, of course, a matter of some importance to the industrial sector, where recent data also have been favorable. Manufacturing output is estimated to have risen another six-tenths of a percent last month, putting it at a somewhat higher level than we had anticipated in the June Greenbook.

So where is the bad news that led us to lower our near-term forecast for GNP? In a nutshell, I think two nonfinancial items were especially influential. First, there were the labor market data--most notably, the contraction in production-worker hours last month. The July drop in hours in the service-producing sector seems implausibly large, but we didn't feel we should discount it entirely, especially given all of the stories of employment cutbacks coming from a variety of industries. This brings me to the second major item on my bad-news list, which is the predominantly negative tone of the recent anecdotal evidence on the economy. Comments from the business community, such as those you conveyed in the conference call a couple of weeks ago, scarcely have pointed to a real take-off in the economy. They suggested that we should anticipate an even more cautious approach to hiring and investment than we had built into our prior forecast.

On the negative side, too, were several pieces of financial news. First, there is the weakness of M2 and M3. I remain skeptical about the utility of the aggregates as indicators of short-run economic performance, but, that said, it is hard to ignore the kind of softness we've been seeing of late. And beyond the aggregates, there are other worrisome developments in the financial sector. Just when

merger activity evidently has caused the capital markets to look upon banking firms with greater favor, life insurance companies have come under greater pressure. Fears of runs have caused insurers to alter their lending practices, with negative implications for the availability of credit to sectors already hit by the bank credit crunch. Moreover, it is conceivable that concerns about the security of insurance policies and retirement savings could have negative effects on consumer sentiment and spending behavior. In my view, these financial imponderables not only widen the distribution of possible economic outcomes but they also skew it toward the downside.

It is with some difficulty that one translates these rather murky bits and pieces into a numerical forecast. Doing our best, we arrived at a 3-1/4 percent GNP growth rate for the second half of this year, about 1-1/2 points less than we indicated at last month's meeting. We have predicted that part of this shortfall will be made up during 1992, but the gap between actual and potential output remains wider throughout the projection.

This expected greater slack in the economy has led us to stick with our prior forecast of price inflation in the face of some disappointing figures on labor costs in the second quarter. It appears that employers have been making slower progress than we had thought in reining in compensation increases. It may be that the bigger year-on-year increases in consumer prices that we were looking at until recently have been a more influential benchmark for pay decisions than we allowed for; if this is the key, the recent better price numbers and the evident decline in inflation expectations should help to damp compensation increases in coming quarters. Also important, however, is whether businesses can do better in curtailings, or offsetting in wages, the soaring costs of medical insurance and the substantial increases in expenses for unemployment insurance and

workers' compensation programs. The record to date is less than encouraging.

In light of these considerations, we've raised the rate of compensation increase in our forecast, but, given the expected economic environment, we haven't let these higher costs show through in prices. This might suggest some upside risk in our inflation forecast, but we feel reasonably confident that the underlying trend of price increases is tilted downward at this point and will remain so unless the economy proves appreciably stronger than we've projected.

I'd like now to conclude with some stunning insights into the likely economic consequences of the Soviet coup. Unfortunately, I don't have any. Much attention has focused on the possible implications for oil supplies, demands for grains, and defense spending. While this all makes some sense, it seems to me that, until we have a better fix on the situation within the USSR, any assessments of these effects are highly conjectural. At this point, the only thing I feel fairly comfortable saying is that the Soviet upheaval has engendered additional uncertainty, and this can hardly be a good thing for our still unsteady economic recovery.

August, 20, 1991

FOMC Briefing
Donald L. Kohn

The focus of my briefing this morning will be the weakness in the aggregates, especially M2, and its possible implications.

The recent behavior of M2 has been extraordinary. Sluggish growth in June, declines in July and a flat August are occurring in the context of substantial previous declines in short-term interest rates and at least a modest expansion of nominal income and spending. To be sure, some of the weakness relative to expectations at the last FOMC meeting reflects an apparent shortfall in income relative to expectations, and we can not rule out the possibility that M2 is in part telling us that the current level of economic activity is less than now forecast.

The weakness in M2, though, seems to be considerably greater than can be explained by any reasonable estimate of contemporaneous income, however pessimistic. Thus it implies some sort of portfolio shift, broadly defined. Some such shifting has been underway for about a year, but it seems to have intensified in recent months, as witnessed by the 5 percent increase in velocity now estimated for the third quarter at a time when flat or even declining velocity might have been expected. This shift may involve a reallocation of financial assets, a rebalancing of assets and liabilities, or a shift out of financial assets into real assets--that is, greater spending out of income.

It seems likely that all of these have been occurring, though the evidence on some is mixed, and we can't identify a considerable portion of the shifting that has occurred. In terms of asset portfolios, data and anecdotal evidence suggest a shift from M2 assets

into market securities, held directly or indirectly by households, involving importantly a movement out the yield curve in order to preserve nominal returns for a time. Not only the slope of the market yield curve, but also the unwillingness of banks and thrifts to compete for intermediate-term deposits and the cutback in deposits sold through brokers likely have contributed to this shift. And it probably has been facilitated by a reduction in costs for such transactions, as more households find themselves with investments in families of mutual funds and as more banks make available brokerage and mutual fund services in their lobbies.

The information on rebalancing of assets and liabilities is more ephemeral. Logically, the persistence of high interest rates on consumer and mortgage debt in the face of dropping returns on M2 assets ought to prompt a repayment of such debt out of M2, or at least a downshift in the past propensity to finance spending by borrowing while continuing to accumulate M2. Consumer credit has been quite weak in recent months, despite the strengthening of spending. However, available models, taking account not only of spending but of the normal amortization of debt previously incurred, indicate that the recent expansion of consumer credit has not been unusually weak.

With regard to the choice between real and financial assets, weak M2 could be an aspect of the unusually low measured saving rate of recent quarters as households attempted to maintain spending in the face of temporarily depressed income. Arithmetically, with households saving less out of income, either their borrowing must rise relative to income or their acquisition of financial assets must decline: apparently the latter course was chosen, perhaps reflecting the relative incentives discussed above.

Labelling the weakness in M2 a "portfolio shift" does not by itself indicate whether the behavior of M2 has implications for spending in the future. The question is whether the factors causing the shift may also be affecting spending in ways that have not been anticipated.

It would be entirely appropriate to live with or accommodate lower M2 growth arising from such things as lower transactions costs of rebalancing portfolios, or temporary changes in appetites for M2 assets, or responses to rate relationships that have already been fully taken into account in assessing the outlook for the economy. For example, weak M2 owing to people reaching for yield would not be a cause for concern if high long-term rates were a product of anticipated strength in spending, and if low CD rates or relatively high borrowing costs to consumers reflected credit restraint at depositories that had already been factored into policy decisions. But if long-term rates are high in part because corporations worried about future access to credit are floating huge volumes of bonds, and low intermediate-term CD rates mean that banks don't anticipate loosening credit terms and making loans for some time, weak M2 may be signalling underlying tightness in financial conditions.

In this regard, some examination of corollary indicators of financial conditions might be useful in assessing the signals from M2. The first five charts in your financial indicators package show a few of the usual set of financial indicators formatted to compare their behavior in recent months with the usual pattern around business cycle troughs. Two caveats in viewing these charts: first, they have been indexed to the trough month, which abstracts from the absolute level of the indicator relative to past cycles; second, one should not expect to see a "typical" recovery pattern, since the FOMC itself has

not anticipated a "typical" recovery, given the relatively shallow recession and the Committee's desires to make progress toward price stability.

The first chart shows M2. The unusual nature of recent developments can be seen in the unprecedented weak level of M2 growth in the upper panel, as well as the stark differences of the current cycle with historical patterns seen in the lower panel.

The behavior of M1, shown in the next chart, by contrast looks quite typical. It has increased at a 6-1/2 percent rate so far this year, and model results suggest a substantially smaller shortfall from expectations than for M2. While the pattern of M1 growth may provide some comfort about the stance of monetary policy, the reliability of this aggregate is open to question. The velocity of M1 has become highly interest sensitive in the 1980s--so much so that the FOMC was unable to continue to use it as a target variable. Perhaps reflecting the behavior of its velocity, movements in this aggregate generally do not demonstrate a reliable lead over movements in income.

The third chart shows one measure of the real rates that have accompanied this monetary growth. The Michigan survey does suggest a notching down of inflation expectations and this is reflected in the small rise in real rates earlier this summer. Much of this rise was reversed in the first half of August, and these rates are at the lower end of the range prevailing in the 1980s.

Even so, some other indicators that may be heavily influenced by real rates have been unusually soft in recent months. One is commodity prices, shown in the next chart, which plots the experimental index without food and energy. These prices might also be showing the effects of a fairly strong dollar, itself perhaps related to real interest rates.

Another such indicator is stock prices, the next chart. Before April, stock prices had followed a classic pre-trough pattern, but since then have traded in a relatively narrow range, in contrast to the continued gains found in many previous recoveries.

Taken together, these corollary indicators present something of a mixed picture, but do tend to suggest at least some restraint relative to the early stages of past cycles, though not the severe restraint indicated by M2. As noted above, a less accommodative policy than is typical might be appropriate, given the nature of the recession and the Committee's objectives, though the effects of a more restrictive fiscal policy and credit supply conditions also need to be taken into account. Parsing the shortfall in M2 growth into how many percentage points can be ignored versus how many the Committee would need to react to does not appear possible with any confidence. And policy has recently eased a notch in part responding to money growth. But the extent of the weakness in money relative to expectations, along with the various statistical tests that continue to show some leading indicator properties for M2, suggest that at least a continuation of the recent path of M2, especially in the context of persisting concerns about credit supply conditions, would be a signal which the Committee should continue to take into account in its policy decisions.

The staff forecast for M2 in the bluebook does have a pickup in M2 over the balance of the quarter. This is something of an act of faith, since conventional relationships seem to be failing us. We are predicting a return toward, but not all the way to, normal relationships of growth in M2 to growth in income and changes in interest rates; M2 neither bounces back to recoup some of its recent level shortfall nor does the extraordinary weakness continue. Both the

forecasted strengthening of income and the recent policy easing contribute to the pickup in M2.

The events of the last few days might be expected to bolster M2 growth, beyond that forecast in the Bluebook. The behavior of interest rates and stock prices indicate that heightened uncertainty is causing a shift toward safety and liquidity. This might boost demands for M2 temporarily, just as it did after the invasion last summer. But an increase in M2 for this reason would not indicate a more accommodative monetary policy, since these same forces, and others associated with turmoil in the Soviet Union, also would be tending to damp spending.

With regard to the various alternatives, alternative C was omitted on the grounds that a tightening with money growth at the lower end of the range and immediately following an easing was an unlikely choice. In constructing the alternative A money paths, the staff allowed for a fairly normal response of money to lower interest rates. While such a response seemed to be forthcoming earlier this year, the recent behavior of M2 may raise questions about what it would take to boost monetary growth. In that regard, the staff took some comfort from the declines in long- and especially intermediate-term market interest rates through last week. If the yield curve has been a factor in damping the monetary response to lower short-term interest rates, one of the causative factors was the failure of long-term rates to drop along with short-term rates. In constructing alternative A the staff was assuming that a System easing would produce at least some decline in long-term rates, especially if such an easing, like the action earlier this month, were undertaken in the context of softer economic data and a muted outlook for inflation.

For the coming intermeeting period, what the staff projects may be not particularly important relative to what the Committee wants. With M2 and M3 at the lower bounds of their ranges, the Committee may wish to stress developments in the aggregates over the short run, especially in keying any downward adjustments to reserve pressures over the weeks ahead. In the draft directives on pages 14 and 15 of the Bluebook, the staff suggested a change in the last sentence of the typical directive to deal with the unusual behavior of the aggregates. The suggested sentence makes explicit the Committee's expectation of a pickup in money growth over coming weeks, and ties that back into the unusually low three-month growth rates that would ordinarily be written down. An alternative version of the directive language also was given should the Committee wish to make any additional stress on the aggregates quite explicit under the current circumstances. The alternative version moves up the sentence on expected money growth and elevates deviations from those expectations in keying intermeeting changes in reserve conditions.

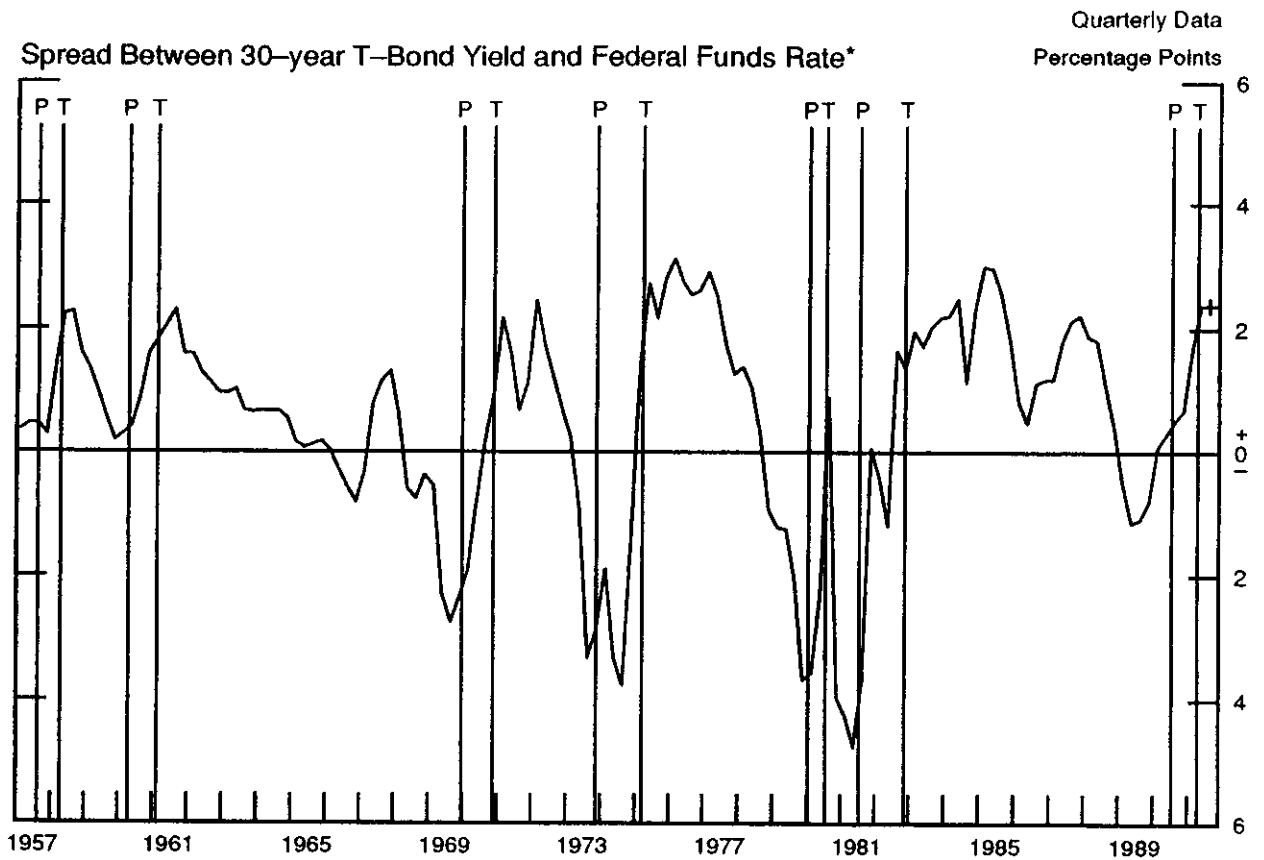
STRICTLY CONFIDENTIAL (FR) CLASS II-FOMC

Financial Indicators

August 20, 1991

Chart 1

The Yield Curve



* Prior to 1977:Q2, the 20-year constant maturity rate is used.

+ Denotes most recent weekly value.

Selected Treasury Yield Curves

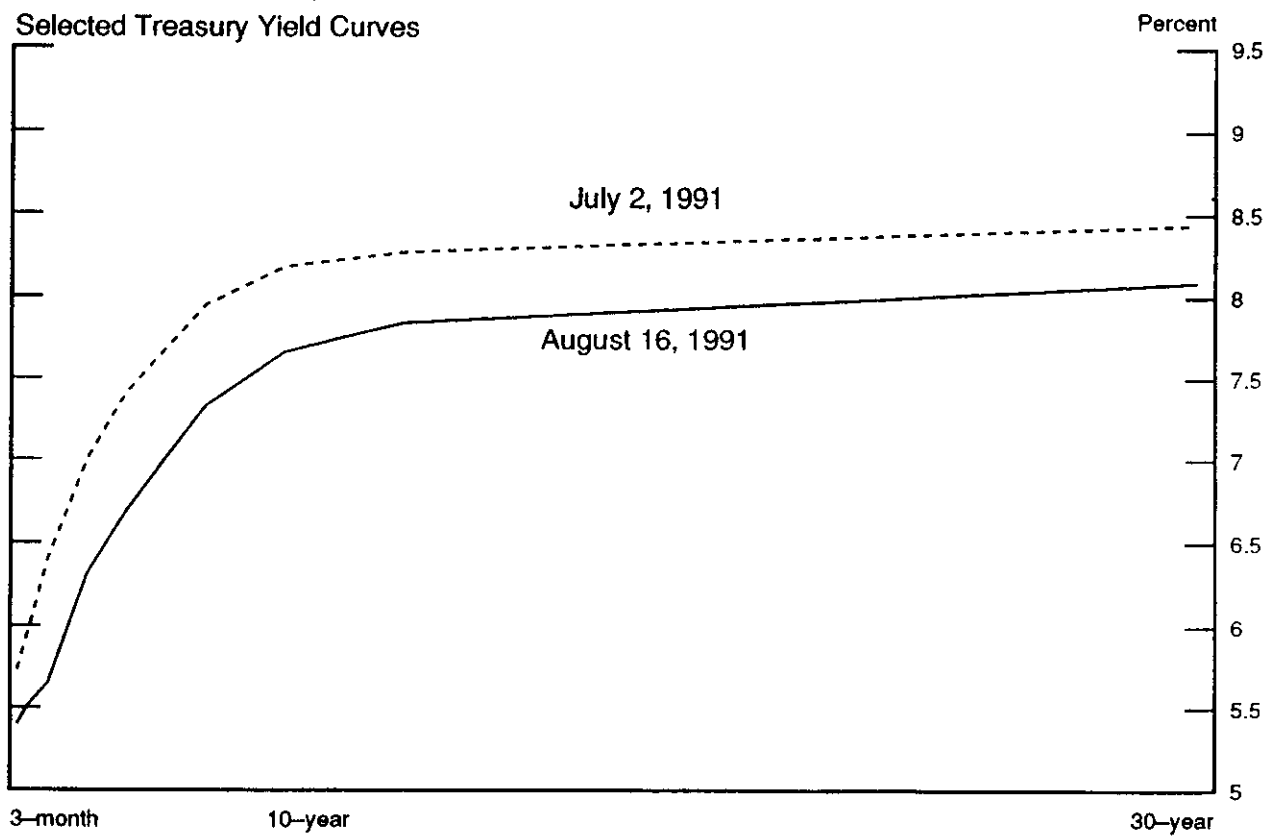


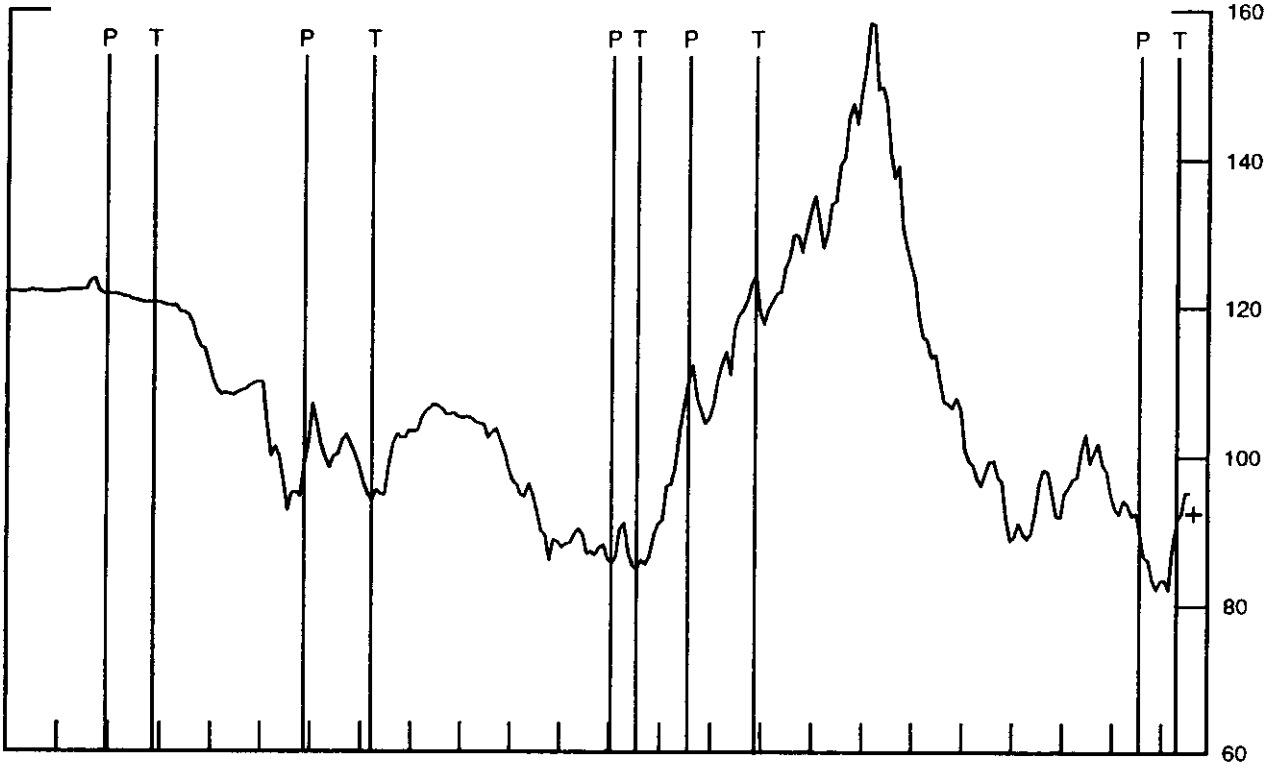
Chart 2

The Exchange Value of the Dollar

(Monthly G-10 Index)

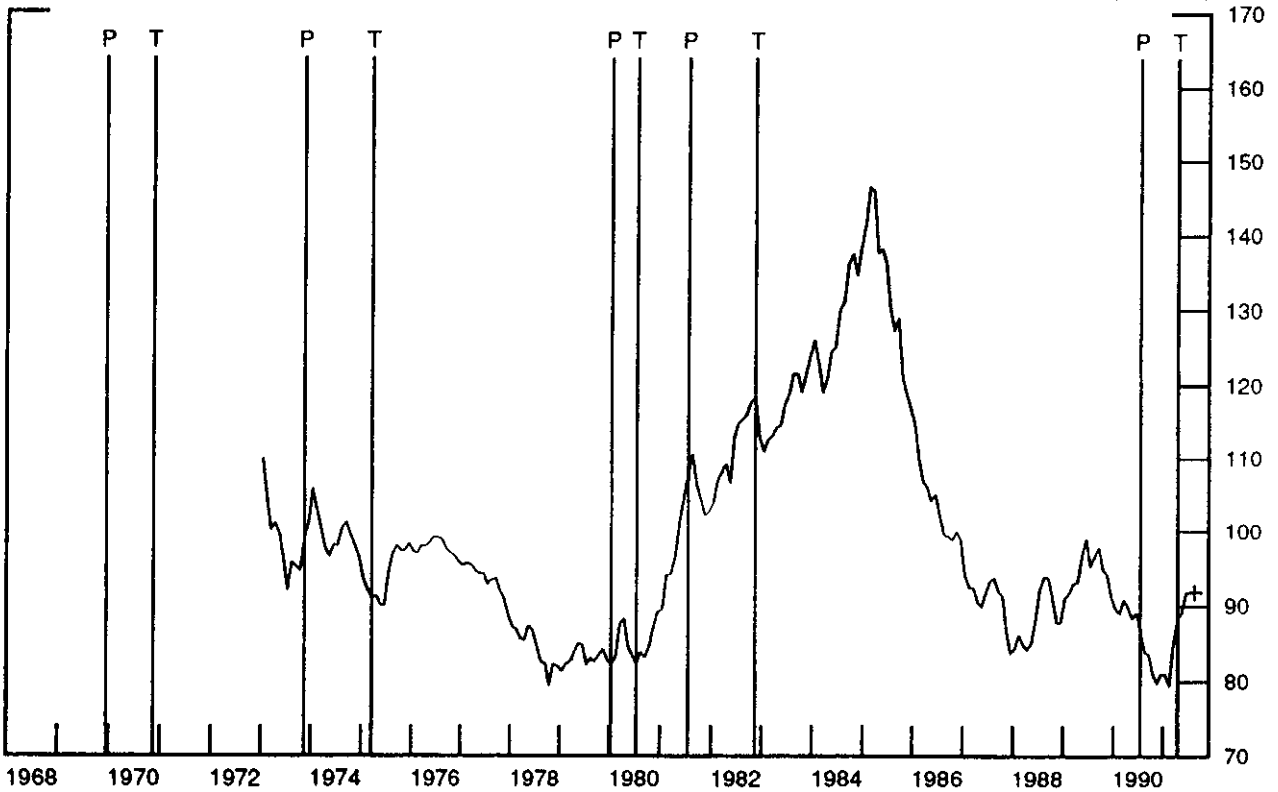
Nominal

Index Level, March 1973=100



Real

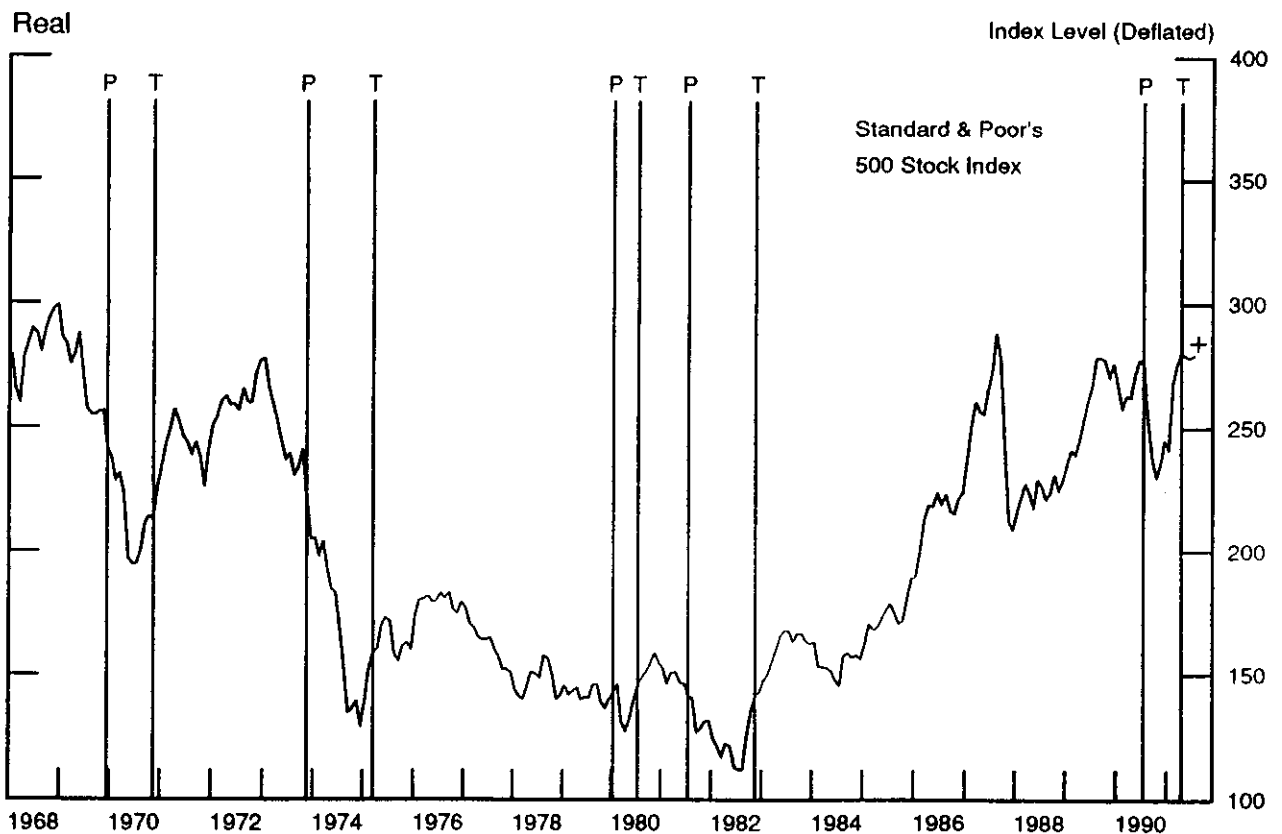
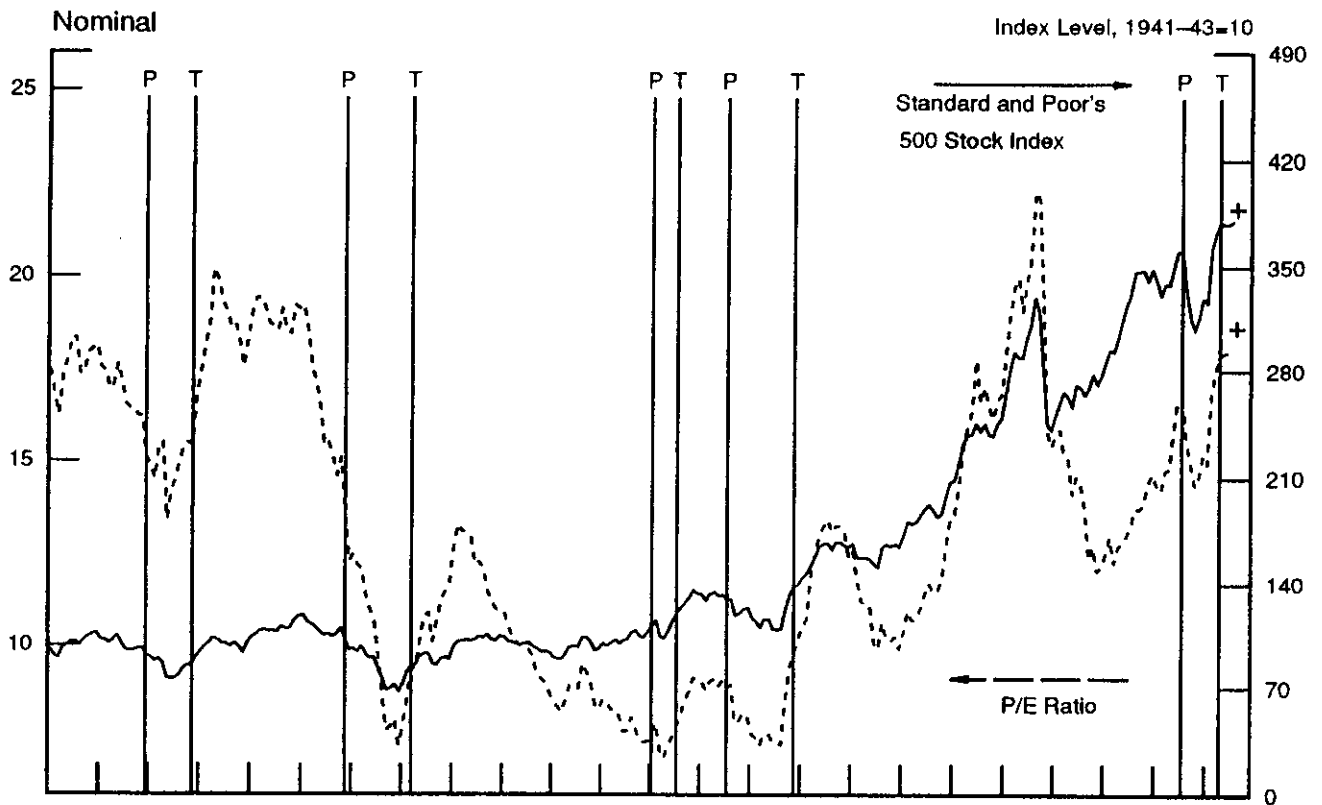
Index Level (Deflated)



+ Denotes most recent weekly value.

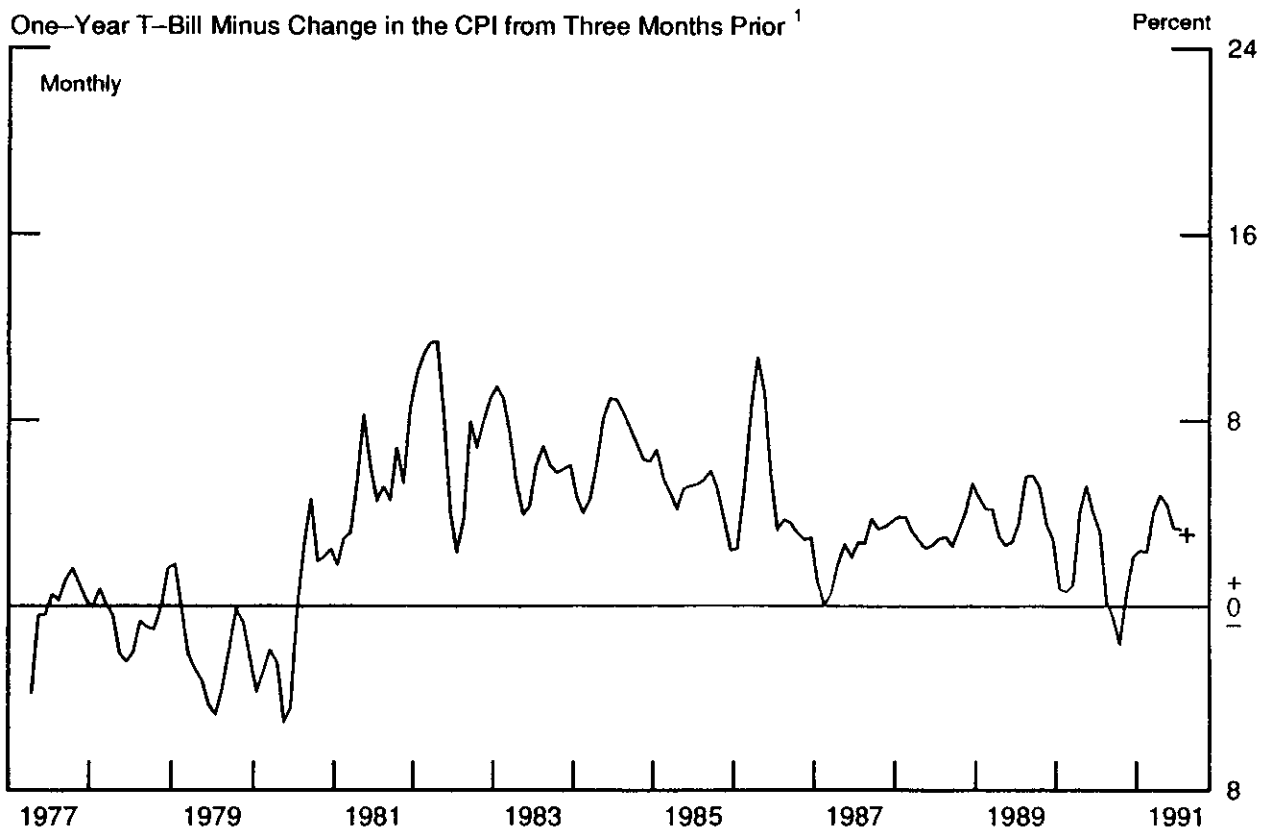
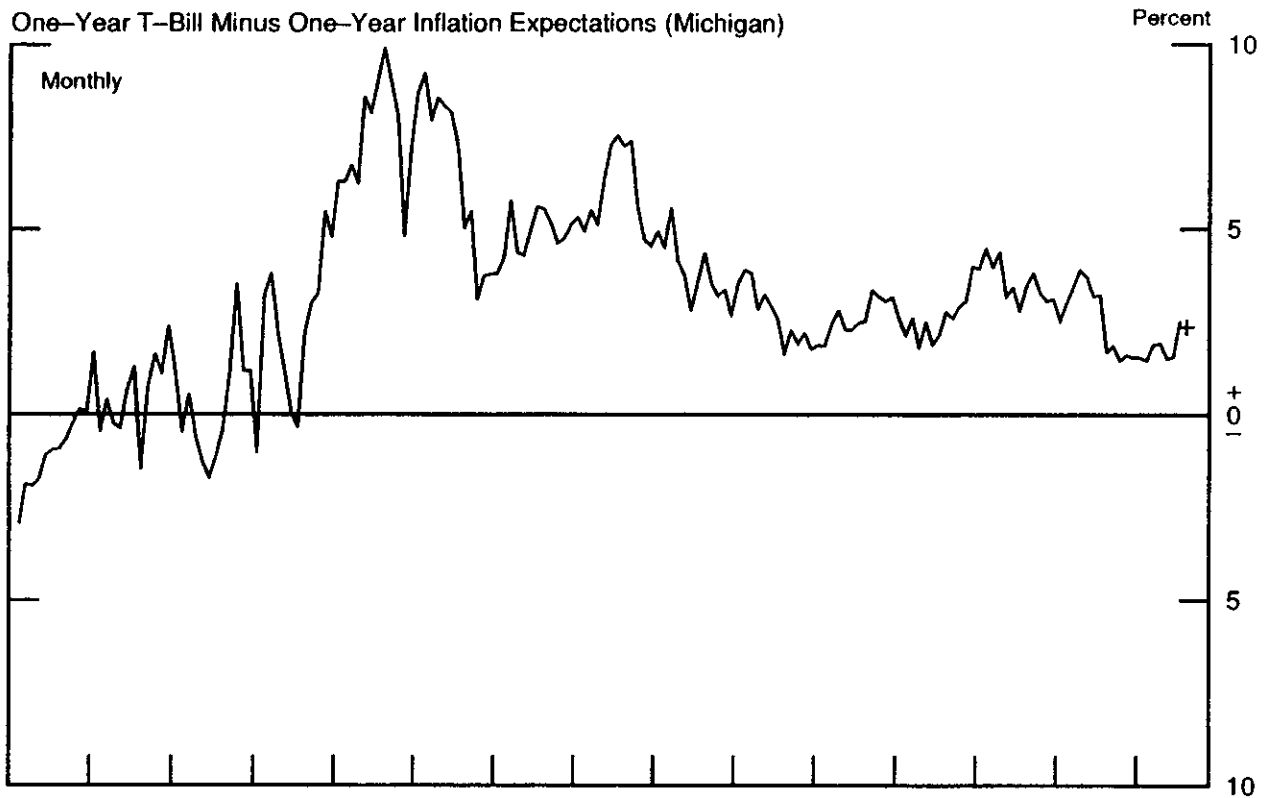
Stock Indices

(Monthly)



+ Denotes most recent weekly value.

Chart 4
One-Year Real Interest Rates



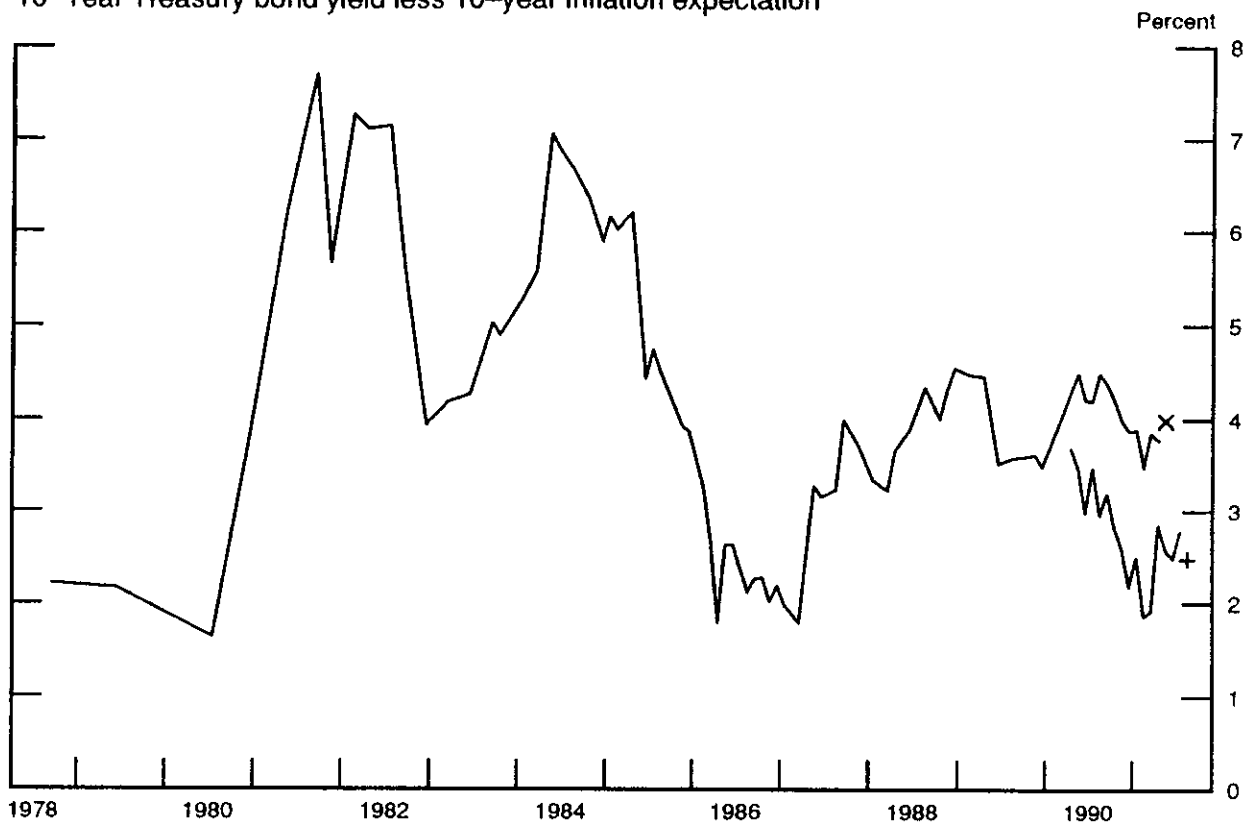
Note: T-bill is on a coupon equivalent basis.

+ Denotes most recent weekly T-bill less most recent inflation expectation.

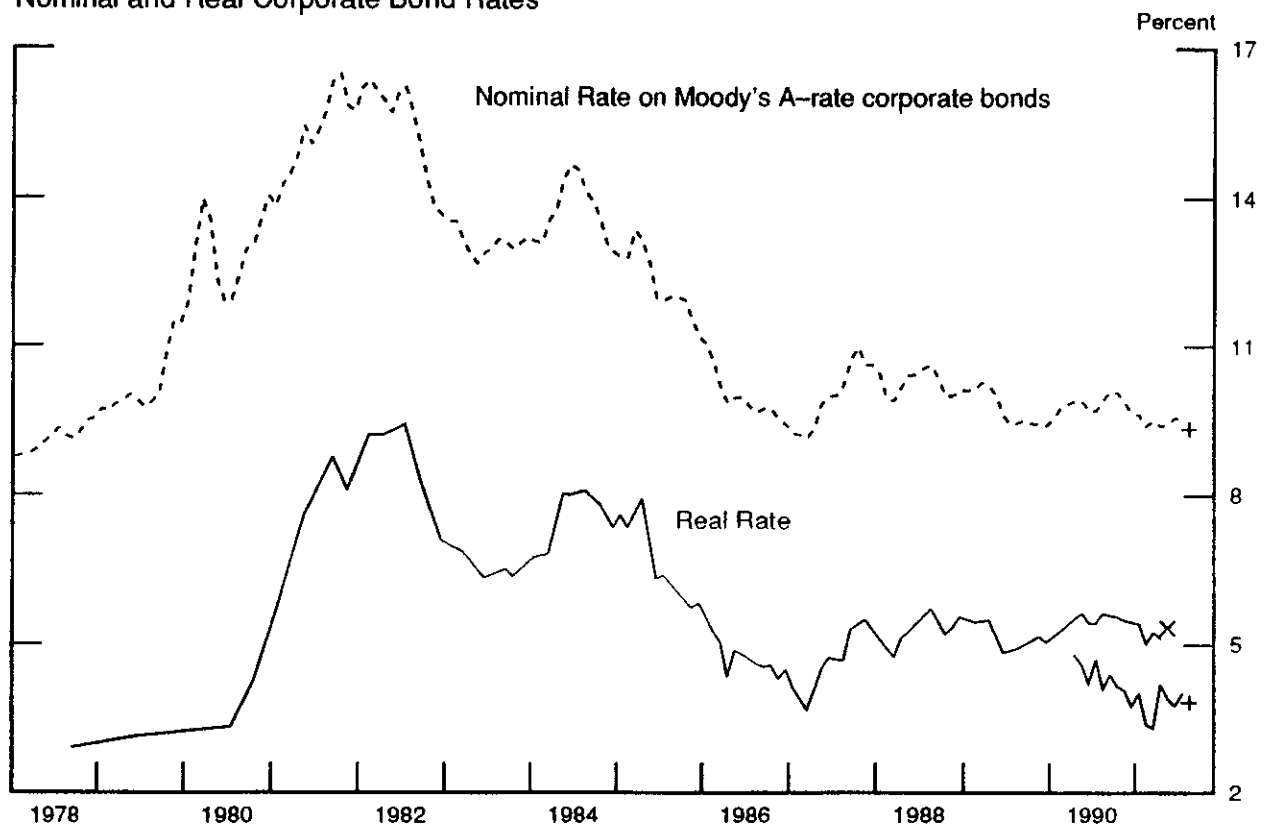
1. Projection period plotted quarterly.

Long-Term Real Interest Rates¹

10-Year Treasury bond yield less 10-year inflation expectation



Nominal and Real Corporate Bond Rates

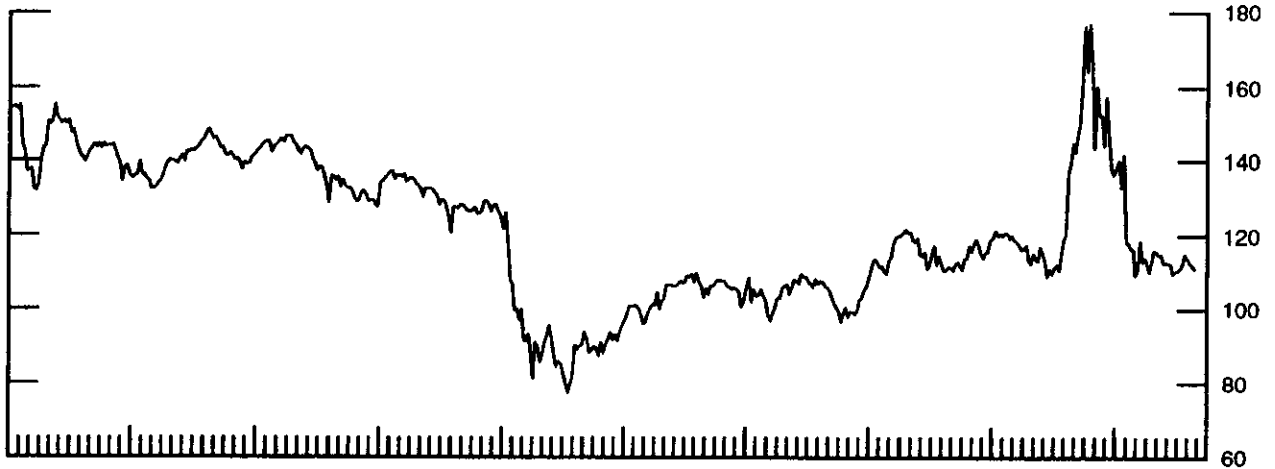


1. For upper line, inflation expectations measured by Hoey 10-year inflation expectation until April, 1991. X denotes Livingston survey. Lower line uses Michigan 5 to 10 year inflation expectations.
 + Denotes most recent weekly value.

Experimental Price Index for 21 Commodities (Weekly)

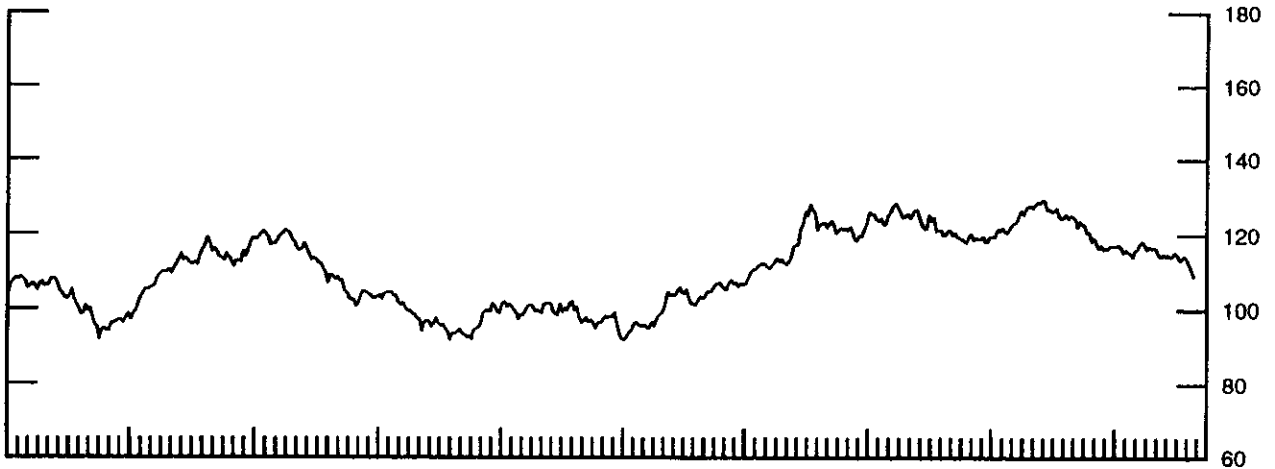
ALL COMMODITIES

Index, 1986 Q1=100



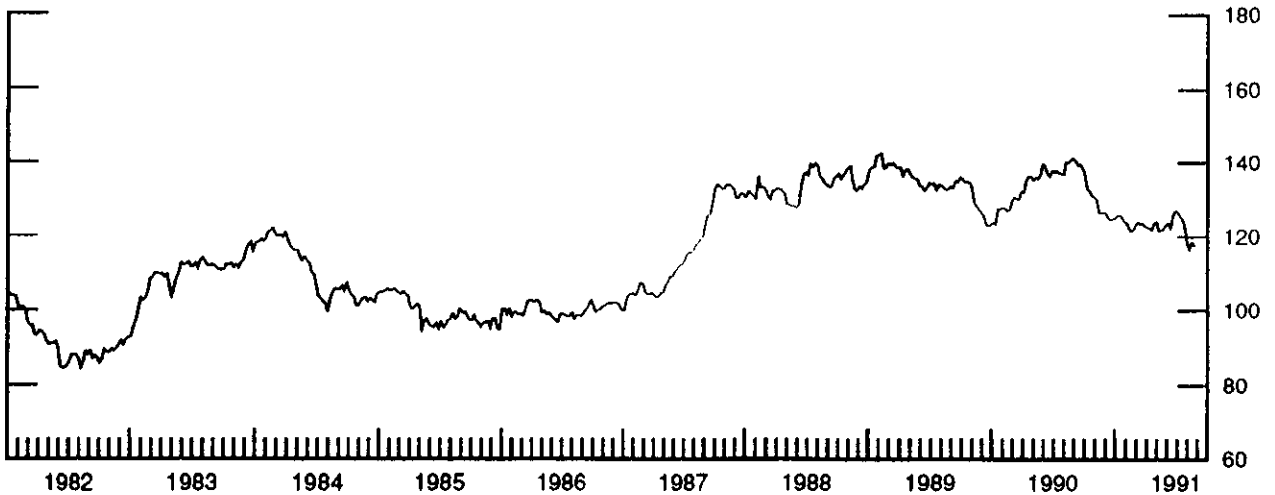
ALL COMMODITIES EX. CRUDE OIL

Index, 1986 Q1=100

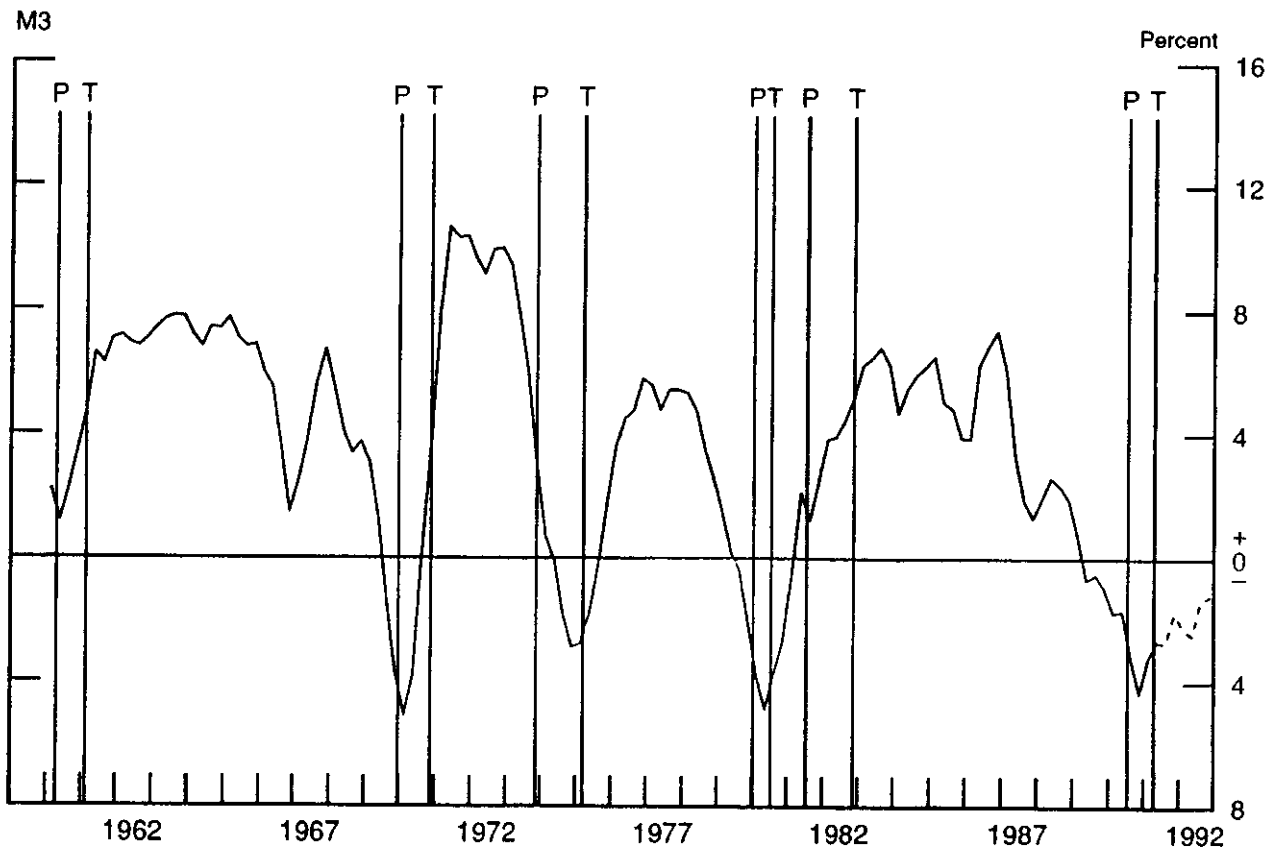
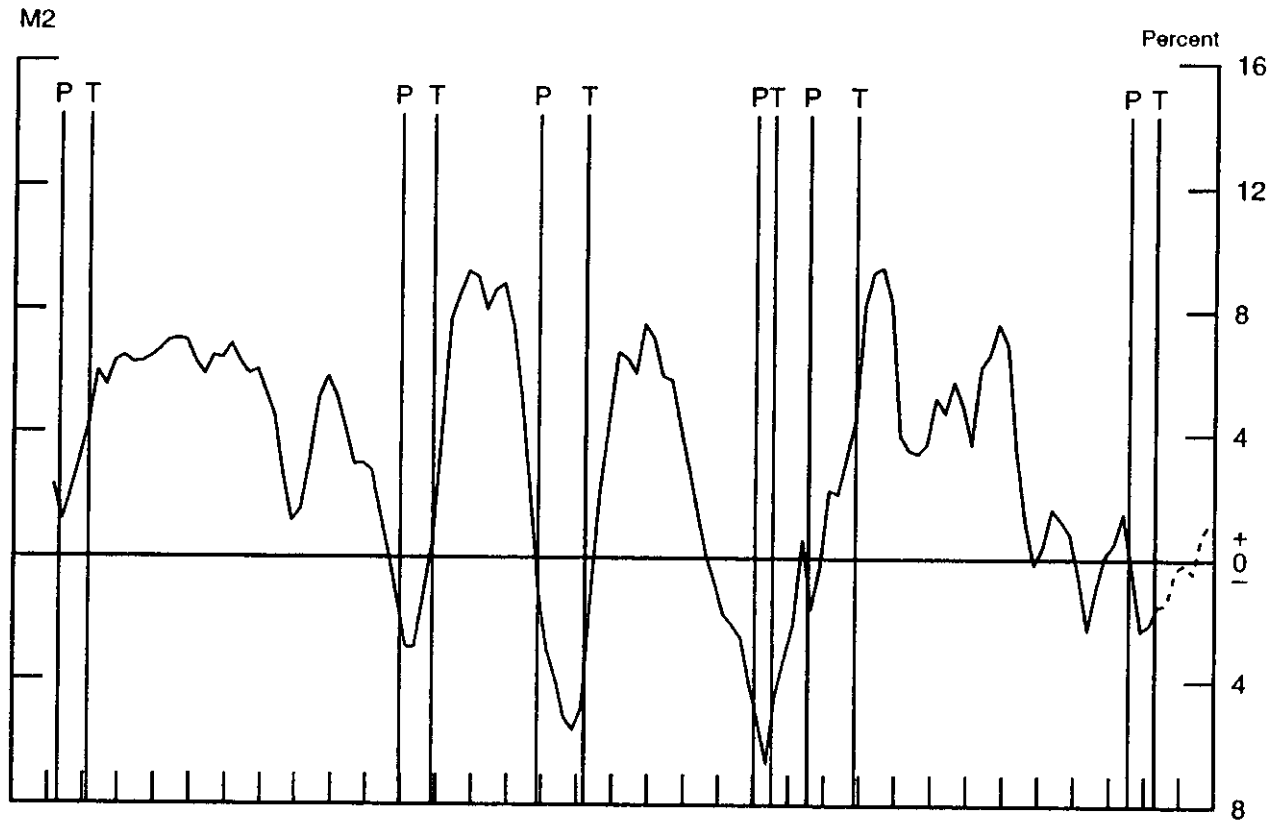


ALL COMMODITIES EX. FOOD AND CRUDE OIL

Index, 1986 Q1=100

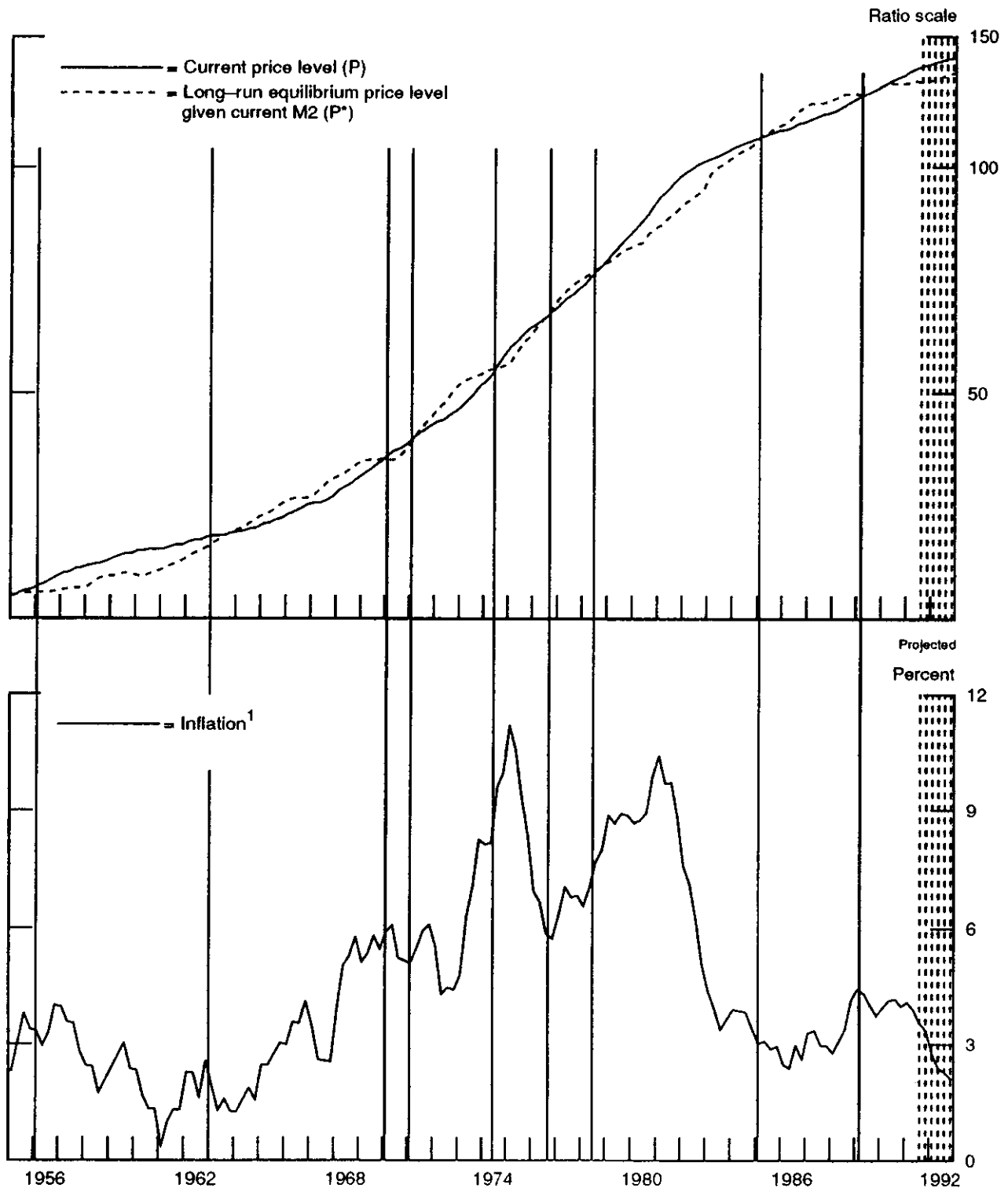


Growth of Real M2 and M3



Note: Four-quarter moving average deflated by the CPI.

Inflation Indicator Based on M2



1. Change in GNP implicit deflator over the previous four quarters.

Note: Vertical lines mark crossing of P and P*.

For 1990:Q4 to 1992:Q4 P* is based on the staff M2 forecast and P is simulated using the price gap model developed by Hallman, Porter and Small.

BOARD OF GOVERNORS
OF THE
FEDERAL RESERVE SYSTEM

Office Correspondence

Date August 14, 1991

To Federal Open Market Committee

Subject: Alternative Operating Procedures

From Donald Kohr

In response to the Committee's request at its last meeting, the attached memo reviews possible alternatives to the current operating procedure, which concentrates on the level of the federal funds rate, adjusts the expected level of the rate in discrete steps based on the Committee's judgment using a number of economic and financial indicators, and transmits those adjustments in an obvious way to the financial markets. In their discussion, Committee members seemed to have been motivated by two related objectives. One was to reduce the "announcement effect" of each change in policy. The other was to remove at least some of the discretionary element of changes in the federal funds rate, allowing reserve conditions to vary automatically with changes in other variables, such as the demand for reserves or money.

In his memo, Mr. Lindsey discusses two types of possible alterations in operating procedures. One would involve somewhat looser targeting of the federal funds rate than the narrow area around a single level that has become the practice in recent years, without any necessary implications for how the target is arrived at. Included in this category are greater toleration of short-run deviations from the

expected level of the funds rate, a range for the expected level, and a return to borrowed reserve targeting. The other type of change is to establish a formal link between reserve conditions or the federal funds rate and movements in money or reserves.

Allowing some ambiguity with respect to System intentions would tend to diffuse reactions to any change in policy, because it could take some time for such a change to be recognized by the market. It would allow underlying demands for reserves, including those resulting from shifting expectations for monetary policy, to show through a little more into short-term rates, and might enable the desk to "test the waters" with respect to a possible shift in policy without committing irretrievably to such a shift. On the other hand, ambiguity about Federal Reserve intentions risks misperceptions and associated interest rate volatility and delays in getting desired changes in interest rates into the market. A shift toward ambiguity might be difficult to explain to the public, and could result in heightened demands for explicit announcements of Fed targets, unless it were also accompanied by a shift toward operating procedures that placed a greater reliance on reserve or money quantities to guide open market operations.

Such a reliance would introduce a greater element of automaticity into changes in the federal funds rate, which could then be seen as falling out of a process of equilibrating shifting demands for money or reserves to a predetermined supply. The difficulty is to

identify a measure of money or reserves--or another policy indicator--that has a sufficiently tight relationship to the ultimate objectives of policy to justify allowing short-term interest rates to change primarily in response to deviations of the indicator from a preset path. In the early 1980s, the Committee moved away from use of M1 (and by implication total or nonborrowed reserves) as such an indicator, and considerable doubts have been expressed about the short-run relation of M2 to the economy or prices. However, these conclusions could be re-examined in light of more recent experience.

There are a number of possible operating procedures that are not treated in the accompanying memo. Among these are tying movements in the funds rate formally to incoming information on real variables, such as employment or GNP, or on nominal variables such as nominal GNP or prices. Variables in the first group cannot be controlled over time by the central bank, and a focus on them alone could endanger the Committee's price stability objective. The latter group may engender difficulties with lags in the effect of policy; however, combinations of these variables could be explored to key automaticity in federal funds rate responses. Another class of procedures not addressed in the memo are those that would combine discretionary changes in federal funds rates under most conditions with greater automaticity when movements in money or reserves approach the outer limits of ranges established by the Committee. Such limits could be defined by the annual ranges or they could be keyed to even longer-term trends in money or in money-based measures such as P^* .

A letter from Al Broaddus at the Federal Reserve Bank of Richmond advocating additional research into reserve-based operating procedures also is attached as background for Committee discussion.

BOARD OF GOVERNORS
OF THE
FEDERAL RESERVE SYSTEM

Office Correspondence

Date August 14, 1991

To Mr. Donald L. Kohn

Subject: Alternative Operating Procedures

From David E. Lindsey

Introduction

At the last Committee meeting, the staff was asked to prepare an overview of alternative operating procedures that would move away from the practice of recent years in which adjustments to the intended federal funds rate have been entirely discretionary, have been quickly recognized by market participants as discrete changes in the stance of monetary policy, and therefore have tended to constitute "announcements" of Federal Reserve policy. In recent years, as in the 1970s, the Federal Reserve has been perceived as being responsible for the average rate at which federal funds trade, within a relatively narrow margin for variation, over intervals as short as a reserve maintenance period. But as the funds rate has become more nearly a discretionary policy-determined variable, the less could it be characterized as responding to market forces balancing demands and supplies for money or reserves. Accordingly, sustained increases in the federal funds rate are more likely to be seen as deliberate policy decisions, rather than as a byproduct of procedures to attain other, more basic policy objectives, such as monetary control. Partly as a consequence, an entirely discretionary policy also risks an undesirable inertia in the

federal funds rate, so that policy may not effectively counter cyclical developments in the economy or make progress toward price stability.

On the other side of the ledger, current procedures likely have damped the short- and intermediate-term volatility in security prices that can arise through variability in the relationship of interest rates to alternative operating objectives or through market misperceptions about policy intent. Tying open market operations to movements in monetary aggregates or in reserves likely would have contributed considerably to short- and intermediate-term variation in interest rates at a time when questions were being raised--within and outside the Federal Reserve System--about the relationship of money and reserves to the objectives of the Committee, except over fairly long periods. Indeed, current operating procedures have evolved in a series of steps over the 1980s as a result of concerns about avoiding inappropriate interest rate movements and unnecessary volatility that can result from shifts in demands for money or borrowed reserves.

Structural changes in the M1 demand function induced the Committee in October 1982 to replace its nonborrowed reserves operating target tied to a desired path for M1 with an operating target for adjustment plus seasonal borrowing. For a brief time, the borrowing objective was informally linked to deviations of M2 from path, but by early 1983 its setting had become wholly discretionary, eliminating the last vestige of any mechanism involving automatic feedback from undesired movements in a monetary aggregate to discount borrowing and hence to the funds rate. The Committee reacted to the fragile state of

financial markets after the stock market crash of October 1987 by instituting a flexible approach to the borrowing objective that was tantamount to federal funds targeting, although in a form not as rigid as in the 1970s. Attempts to revert to the borrowed reserves operating target in 1988 were frustrated by the breakdown in the discount window borrowing function. Finally, after market misinterpretation of open market operations around Thanksgiving 1989, the Manager has had to pay even more attention in day-to-day open market operations to funds rate objectives, allowing the prevailing funds rate more frequently to override reserve projections in guiding day-to-day operations. In this evolutionary process, the FOMC has judged, at least implicitly, that the advantages gained in each adaptation, by avoiding potentially inappropriate funds rate movements possible with earlier procedures, have outweighed the disadvantages noted above.

The table on the next page vividly demonstrates the effects on one measure of funds rate variability of these procedural changes. The root mean squared deviation of the maintenance-period average effective federal funds rate around the Desk's expected level has dropped with successive shifts from nonborrowed and borrowed reserves targeting to a focus on the federal funds rate.¹

1. The subsequent increase in funds rate volatility, especially from December 1990 to March 1991, was associated with the reduction of nontransactions reserve requirements to zero. For a time, reserve balances fell to levels at which reserve demands for clearing purposes dominated demands to satisfy reserve requirements. More recently, this effect has been significantly mitigated by growth of required reserve balances as transactions balances have increased, by increased required clearing balances, and by additional experience gained by institutions in operating with lower reserve balances.

Deviation of Effective Federal Funds Rate From Desk's Expectations
(Maintenance Period Averages)

	<u>Mean Absolute Deviation</u>	<u>Root-Mean- Squared Deviation</u>
	--- percentage points ---	
Oct. '79 - Oct. '82 [*]	.43	.55
Oct. '82 - Oct. '87 ^{**}	.15	.23
Oct. '87 - Thanksgiving '89	.09	.11
Thanksgiving '89 - 12/12/90	.08	.10
12/13/90 - 3/20/91	.14	.17
3/21/91 - 8/7/91	.09	.13

* Excludes the period encompassing the end of 1980.

** Excludes the periods encompassing the ends of 1982 and 1986.

The increased attention to the federal funds rate does not appear to have greatly hampered the execution of policy. Over the nearly nine years since the nonborrowed reserves procedure was replaced, discretionary movements in the operating target--first for borrowed reserves and then for the funds rate--have seemed adequate to avoid the excessive policy inertia in a cyclical context that some observers contend characterized policy implementation in the 1970s. Changes in the operating target at FOMC meetings have been supplemented by frequent adjustments during intermeeting periods, at times also involving a full or partial pass-through to the funds rate of discount rate changes. Even since the essential form of current procedures emerged in the fall of 1987, this policy flexibility has continued to produce substantial cumulative movements in the funds rate--upward as well as downward--that were able to sustain economic expansion while holding the line on inflation through the rest of the 1980s and then to cushion the downturn in economic activity that began last summer.

Looking forward to a time when a tightening of monetary policy may be called for, however, the disadvantages associated with transparent discretionary control over the federal funds rate could be seen as relatively more important than they have been during the easing trend of recent years. This memo briefly discusses a variety of alternative procedures, in order to provide background for the Committee's discussion of the issues and possible decision to have the staff undertake a more thoroughgoing analysis. Consideration of

alternatives--ranging from more minor changes to more major ones-- basically involves traveling backward in time through this process of evolution in operating procedures. Even more radical approaches to policy implementation than the Committee has attempted in the past, such as pursuing a total reserves or total base operating target or restructuring discount window arrangements to establish a penalty rate, also are catalogued.

Alternative Procedures: Summary

Three alternatives would result in some ambiguity about the federal funds rate associated with the Desk's operating objective, but would retain discretion over changes in the operating target--by the Committee at FOMC meetings and, through delegated authority, by the Chairman between meetings--in response to a variety of economic and financial developments.

1. Gear open market operations somewhat more to reserve projections and less to the prevailing funds rate, thereby providing a little more scope for funds rate variability and at times increasing market uncertainty about the funds rate objective, while still retaining the single-valued federal funds rate objective.
2. Establish a range for the funds rate objective, say $1/8$ to $1/4$ percentage point in width, along with alternative 1, thereby reintroducing an element of indeterminacy to the intended funds rate and providing some scope for "testing

the waters" prior to formal changes in the stance of operating policy.

3. Reestablish an operating target for discount window borrowing that no longer would be "approached flexibly" by the Trading Desk, thereby allowing still more scope for funds-rate variability to emerge in response to unpredicted shifts in the borrowing relation or market expectations of an impending change in the discount rate or the borrowing objective.

The next two alternatives would institute an automatic response of the operating target to deviations of M2 from the Committee's path.

4. Establish an operating target for discount borrowing that would automatically be adjusted by some fraction, say 1 or 2 percent, of the divergence of M2 from a preset path. This procedure would mimic the behavior of a nonborrowed reserves operating target in an institutional setting with a uniform 1 or 2 percent reserve requirement on all components of M2, and thus promote variations in the federal funds rate in response to unanticipated movements in M2, as well as to unpredicted shifts in the borrowing relation or to varying market expectations.
5. Establish an operating target for the federal funds rate that would automatically be adjusted by some fixed amount for each \$1 billion of the divergence of M2 from a preset path. This technique would essentially replicate the

behavior of a nonborrowed reserves operating target in an institutional setting with a uniform reserve requirement on all components of M2 and with a stable borrowing function, thus short circuiting effects of instability in the borrowing relation or of varying market expectations while still retaining the automatic funds rate response to unanticipated movements in M2. For example, adjustments of 2-1/2 or 5 basis points for each \$1 billion deviation of M2 from path would be virtually equivalent to a uniform 1 or 2 percent reserve requirement against M2 and a borrowing function in which a \$100 million change in borrowing widened or narrowed the spread of the funds rate over the discount rate by 25 basis points.

The final two alternatives would further reduce the interest-responsiveness of reserve supply, either through establishing a total reserves or total monetary base operating target or by establishing a penalty discount rate.

6. Establish a total reserves or total monetary base operating target, thereby curtailing the safety-valve role of the discount window over periods longer than one day. Federal funds and other short-term rates would vary considerably in response to changes in demands for reserves. Short-run control over M1 (but not necessarily M2) would be enhanced.
7. Establish a penalty discount rate above the expected trading area for the funds rate, perhaps in combination

with a nonborrowed reserves operating target, thereby further curtailing the safety-valve role of the discount window, additionally elevating the equilibrating role of reserve demands in determining the funds rate, promoting still more variability at least of short-term interest rates, and implying as a side effect even closer short-run control over M1.

Alternative Procedures: Discussion

1. Gear operations less to the prevailing funds rate. Even if the Committee retained a single-valued funds rate objective, it could be made a little less transparent to market participants if open market operations were geared somewhat more to projected reserve needs and less to actual funds trading at "Fed time" each morning. This approach would provide a bit more scope for variation in the funds rate in response to reserve market pressures or changing market expectations. The Manager could widen the current implicit quasi-"intervention points"--in which reserves are drained (added) when the rate moves far enough below (above) the objective regardless of projected reserve needs. Instances of operations both to add and drain reserves in the same maintenance period hence would occur less often. Signals from open market operations themselves about the funds rate objective would become slightly more difficult for the market to read. More occasions might arise in which questions about the Federal Reserve's intended rate on federal funds were raised, and policy moves to change the funds

rate objective might less often be immediately recognized by market participants.

As with the other alternatives as well, the issue to be assessed is what would be gained on balance by such a change in Desk operations. The Federal Reserve would place a little more distance between itself and day-to-day movements in the funds rate. That rate also would come a little more to reflect underlying factors affecting the supply and demand for reserves, including market expectations of Federal Reserve policy moves. Conceivably, additional flexibility at times could be used to assess market reaction to movements of the funds rate far enough away from the previously perceived objective to foment market suspicions of a current or imminent policy change. At other times, however, markets could perceive the possibility of a policy move when no such change is intended, inducing a subsequent "whipsawing" of securities prices once the unchanged basic policy stance became more apparent over time. It also might take longer for markets to recognize an intended change in policy, which would delay the response but could tend to diffuse public discussion of such changes.

2. Reestablish a range for the funds rate objective.

Committee selection of a range for intended funds rate trading also could be combined with the last alternative's approach by the Desk to open market operations. This alternative would further loosen up funds rate variability by introducing some indeterminacy in the operating target for the funds rate, say of $1/8$ or $1/4$ percentage point. Market participants thus would be less able to pin down the intended policy

stance at any point in time, and expectations and pressures in the reserves market would have even more room to show through to actual funds trading. Enough ambiguity about Committee intent would be restored to permit more frequent probes by the System into market responses to changes in the funds rate, with enhanced opportunities to "validate" those changes in the funds rate that seemed to have avoided untoward market reactions. Under such a system, implementation of policy on a daily basis could become somewhat more flexible and judgmental.

The rationale for simply introducing more flexibility and ambiguity into the System's approach to its federal funds target may be difficult to explain to a public grown accustomed to having little doubt about the current federal funds rate objective and to instantaneous recognition of changes in such objectives. One possible response would be increased calls from Congress to announce our current objectives.

3. Reestablish a borrowed reserves operating target. The Desk could be instructed essentially to abandon its flexible approach to the formal borrowing objective now used in constructing reserve paths. The Committee could instruct the Manager to make a reasonable effort to attain the path objective for adjustment plus seasonal borrowing, regardless of implied funds rate movements, except perhaps for especially sizable ones. This alternative would again make the federal funds rate, for a given discount rate, depend importantly on the behavior of depository institutions in tapping the discount window.

Over the period of rigorous pursuit of a borrowed reserves objective--from October 1982 through the stock market crash of October 1987--the two-week maintenance-period average effective funds rate deviated from the Desk's expectation by no more than 23 basis points two-thirds of the time (table following page 3). There is reason to think that comparable pursuit of an operating target for borrowed reserves in the current financial environment would yield a higher figure. With the heightened reluctance of banks to avail themselves of discount credit, borrowing has moved closer to a frictional level at positive funds rate-discount rate spreads; the reluctance to borrow also seems to have manifested itself in a much less interest-elastic borrowing relationship than in the mid-1980s.² If so, Desk attempts to attain a borrowing objective over a maintenance period would imply wider funds rate movements in current circumstances in response to unanticipated shifts in the borrowing relation or to daily shocks to other factors affecting reserve supply or demand of comparable size to those of the earlier period.

Compared with the approach of recent years, this alternative would afford more scope for market expectations about the System's impending policy stance to show through to the funds rate, supplementing other sources of information about market expectations

2. At that time, the bluebook incorporated a relationship in which a 25 basis point change in the spread was associated with a \$100 million change in adjustment plus seasonal borrowing. In recent bluebooks, the assumed relation has been 100 basis points per \$100 million of borrowing--four times as steep. Only some of the steepening is believed to be associated with the narrow spread observed so far this year and the induced borrowing levels close to frictional minimums.

now available in futures and forward quotes on federal funds and other instruments. Under this alternative, the Federal Reserve could back well away from transparent targeting of the federal funds rate.

However, with the degree of funds rate volatility likely to be even greater than experienced during the regime of borrowed reserve targeting, and with the rate movements not closely connected to broader monetary, financial, or economic developments, the Committee's tolerance for funds market variability undoubtedly would be tested.

4. Establish an operating target for discount borrowing automatically tied to misses of M2 from target. This approach would approximately conform to the nonborrowed reserves procedure of October 1979 to October 1982, but with automatic movements in borrowed reserves linked to deviations from target of M2 rather than M1. The borrowed reserves objective would be changed as the intermeeting period progresses by an amount equal to some specified fraction, say 1 or 2 percent, of the absolute divergence of M2 from a target path set by the FOMC for the intermeeting period. The alternative hence is designed to mimic the workings of a nonborrowed reserves operating target in an institutional setting in which a uniform required reserve ratio of 1 or 2 percent is established on all components of M2.³ The procedure thus would institute a primary role for intermediate-term control over M2 in the policy process. Systematic movements in the funds rate in the same direction as unpredicted swings in M2 growth would be overlaid

3. Required reserves, which today cover only transaction deposits, currently are 1.46 percent of M2 as a whole. Prior to the reduction in non-transaction reserve requirements to zero late last year, this figure was 1.84 percent.

on the unsystematic variability in the funds rate associated with the operating target for borrowed reserves, as discussed in the context of the last alternative. The systematic part of funds rate movements would act automatically to counter over- or under-shoots of M2, helping to restore the aggregate to its target over time.⁴

One critical issue is whether the Committee would be prepared to elevate M2 as the dominant determinant of systematic movements in the funds rate over intermeeting periods, thereby eschewing discretion in favor of an automatic monetary control mechanism. The shorter- and even intermediate-run relationships between M2 and nominal spending are usually seen as being much less reliable than the longer-run connection. Thus, absent a situation in which inflation has become intense and the central bank's credibility has been brought into serious question, the underlying case for emphasizing shorter-run monetary control has been viewed as being much less persuasive than the case for longer-run control. Indeed, the Committee in the operating paragraph of the current directive has placed the monetary aggregates only third on the list of factors governing intermeeting adjustments of the policy stance. Thus, the Committee would need to assess whether the systematic variation in the funds rate automatically produced by variations in M2 from its intermeeting target path under this procedure typically would serve to promote its broader policy objectives.

4. The dynamics of such an automatic feedback relationship from M2 misses to changes in short-term interest rates interacting with the delayed effects over time of changes in short-term interest rates on spending, opportunity costs, and M2 demand actually is extremely complicated, perhaps involving induced cycles in M2 growth and nominal income.

Another issue involves the unsystematic component of funds rate variation that also would emerge under this alternative as a result of changes in borrowing behavior, as discussed in the context of the previous alternative. Of course, the Committee could constrain overall funds rate movements during the intermeeting period by appending bands of, say, 2 or 3 percentage points on either side of the initial expectation for the funds rate. The Desk could be instructed not to allow the funds rate to move persistently outside these limits. Alternatively, to avoid the extra funds-rate volatility associated with reliance on borrowed reserves as the operating target, the following procedure instead contemplates using the funds rate as the operating target to be adjusted automatically in reaction to M2 target misses.

5. Establish an operating target for the federal funds rate automatically tied to misses of M2 from target. Under this approach, the funds rate operating target would be adjusted by, say, 2-1/2 or 5 basis points for each \$1 billion by which M2 diverges from an intermeeting target path. The procedure would mimic nonborrowed reserves targeting in a banking system with a 1 or 2 percent reserve requirement applied uniformly to all of M2 combined with a perfectly stable relationship connecting each 1/4 percentage point change in the funds rate-discount rate spread to a \$100 million change in borrowed reserves in the same direction.⁵

Although this approach would minimize unsystematic variation in the funds rate to around the levels seen in recent years, systematic

5. Similar responsiveness of borrowing to the spread is estimated to have prevailed over a period at least as long as the decade ending in 1987.

rate swings related to deviations of M2 from target would remain. The close tie of the funds rate to M2 behavior would represent a clear departure from Committee practice since 1982, and would raise the fundamental issues surrounding the switch to an automatic mechanism designed to control M2 over the intermediate run. The absence of a reserve-based orientation in the automatic monetary control mechanism would differentiate this alternative from past practice and from many proposed techniques keyed to monetary control. The artificiality of such a system could make explaining its rationale to the public and Congress more difficult. Such an artificiality would apply as well to the linking of automatic changes in the funds rate to the behavior of other, nonmonetary variables such as the price level.

6. Establish a total reserves or total base operating target.

This even more radical alternative would at least ground monetary policy implementation on a reserves basis. However, by considerably reducing the interest elasticity of reserve supply over intervals longer than a day, volatility at least of short-term interest rates would be appreciably amplified. The role of reserves demand in equilibrating the federal funds market would be much enhanced. Funds rate movements would need to be large enough to bring required plus excess reserves demand into alignment with the targeted level of supply, implying the potential for sizable interest rate variations in reaction to changing reserve demands. Because required reserves now only apply to transaction deposits, this approach implicitly could improve short-run control over these deposits, and hence over M1.

However, the Committee for some time has deemphasized this aggregate as a guide to monetary policy. In addition, M2 in the process could be destabilized to the degree that the M1 and non-M1 components of M2 unexpectedly evince differential growth rates, as has been the case this year.

7. Establish a penalty discount rate. Instituting a penalty discount rate would further reduce the interest sensitivity of reserve supply by maintaining discount window borrowing under most circumstances at frictional levels. Because using such borrowing as an operating target would no longer be feasible, this alternative would appear most consistent with selection of a nonborrowed reserves, or in this case virtually equivalently, a total reserves operating target. The system would work much like that of the previous alternative, except that the safety-value feature of the discount window also would be circumscribed on a daily basis, adding still more to funds rate volatility in response to shocks to reserve demand or supply. This feature would imply more daily volatility in the funds rate than recently seen even if the Committee continued to pursue a funds rate operating target. An administered penalty discount rate, with minimal administrative pressure on adjustment borrowing, would tend to cap the funds rate. Even so, funds-rate volatility still could be substantial at levels of funds trading below the discount rate.

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Research Department

August 7, 1991

Mr. Donald L. Kohn, Director
Division of Monetary Affairs
Board of Governors of the
Federal Reserve System
Washington, DC 20551

Dear Don:

The purpose of this letter is to respond to your request, at the July FOMC meeting, for assistance in responding to the Chairman's request that you look into the feasibility of shifting to a reserve operating instrument. As I understand the Chairman's request, he does not expect you to deal with the substantive issue in any detail at the August meeting; he merely wants you to recommend whether it is worthwhile to do further research on it.

We want to persuade you that such a project would be productive despite the extensive work that has already been done. Much has changed since the early 1980s when most of the recent research on operating targets and procedures was completed. Some of the detailed questions addressed in the earlier literature could probably be revisited profitably in the context of the current institutional regime, which, as you are well aware, is quite different from the early 1980s. Moreover, considerable new research bearing on the choice of operating procedures has been completed in recent years. You and your staff are probably aware of most of this work, but some of it may have escaped your notice.

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We would offer three arguments for reopening research on these issues. First, there is a reasonable prospect that a change to some kind of reserve target operating regime would improve monetary control compared to current procedures. Second, some recent research suggests that the present operating regime may be an especially inappropriate one for pursuing our stated longer-run goal of price stability. (In fact, as indicated below, some of the recent work indicates that the current regime may be actually inconsistent with price stability.) Finally, several recent papers shed new and highly interesting empirical light on the extent to which shifting to a reserve instrument would increase the volatility of interest rates. This is important, of course, because the likelihood of increased rate volatility is one of the principal objections raised in the past to moving to a reserve-oriented operating regime and to increasing monetary control more generally.

I have attached a list of references at the end of this letter and am enclosing copies of some of the especially pertinent papers for your convenience.

I should note that the views expressed here are mine and those of other members of the research staff. Bob Black would probably agree with many of them. But he might disagree with some and want to add additional points. He is currently on vacation, and in the interest of time I am sending you this without his input.

Reason 1: Reserve targeting may improve monetary control.

Several papers written over the last 20 years or so have addressed the question of whether an interest rate variable or a reserve variable would produce better money supply control. Perhaps not surprisingly, this research

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has not produced definitive conclusions. At a minimum, however, this literature viewed as a whole certainly does not preclude the possibility that a reserve instrument is preferable. Further, in one of the most recent of these studies [11] McCallum and Hoehn demonstrate that a reserve instrument is optimal in one fairly general theoretical macro model assuming contemporaneous reserve accounting.

On balance, this literature tilts our priors moderately in favor of a reserve instrument. From the perspective of monetary control, further research appears to us, at least, to be justified.

This justification is reinforced by the important institutional changes that have occurred in recent years. Much of the earlier research was completed when the Fed was still focusing primarily on one or another version of M1 and we still had lagged reserve accounting. We are now focusing on M2 in a nearly contemporaneous accounting regime. The shift to a broader aggregate that includes a sizable nonreservable component may reduce the intuitive appeal of a reserve instrument for many Committee members and others, but the shift to nearly contemporaneous accounting significantly increases the appeal. In particular, as Marvin Goodfriend indicates in one of the enclosed papers [6], the shift to contemporaneous accounting has made it feasible to use total reserves as the reserve instrument. In principle, total reserves has important advantages over alternative reserve instruments like nonborrowed reserves from the standpoint of monetary control [see 6, pp. 76-78]. In any event, additional research is needed to sort these issues out in the context of the changed institutional environment.

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Most of the formal analysis of the choice among operating instruments has been conducted as though there were no constraint on the Fed's willingness and ability to alter the federal funds rate (either directly or, in the case of borrowed reserve or nonborrowed reserve-lagged accounting regimes, indirectly) when the funds rate is the instrument. As I believe nearly everyone who has had much experience with the FOMC would acknowledge, it is often very difficult in practice for political and other reasons for the Committee to make or allow the funds rate movements required for reasonably close monetary control. The use of a reserve instrument would loosen this constraint. Indeed, evidence of such a loosening is one of the main lessons of the 1979-82 nonborrowed reserve regime, even though nonborrowed reserves were not a pure reserve instrument under the lagged accounting system then in effect.

In this latter regard, the experience with nonborrowed reserve targeting between 1979 and 1982 is sometimes cited as evidence bearing on the choice among operating instruments. There was, of course, substantial unanticipated variation in money supply growth in much of this period as well as heightened interest rate variability. The extensive Board staff study released in February 1981 [7], however, indicated that much of the variability in money growth in the early part of this period appeared to be due to developments unrelated to the change in operating procedures, such as the temporary credit control program in the spring of 1980. Further, as suggested above, there is a legitimate question regarding the extent to which the 79-82 nonborrowed reserve regime was actually a reserve-targeting regime in the usual sense of the term. In one of the enclosed papers [2], Tim Cook shows that about two-

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thirds of the movement in the funds rate in this period was due to judgmental adjustment of the weekly borrowing target and changes in the discount rate rather than to automatic adjustment of the borrowing target induced by market forces.

To our thinking, the Committee's unwillingness (perhaps for understandable reasons) to vary the funds rate sufficiently to ensure adequate monetary control when the Committee is targeting the funds rate directly or indirectly is the central difficulty with a funds rate instrument. This fact alone seems to us to be sufficient reason to take another look at the desirability of shifting to a reserve instrument.

One of the traditional objections to using a reserve instrument to tighten monetary control is that it would produce significantly greater interest rate variability. This point is addressed in the discussion of reason 3 below.

Reason 2: Interest rate targeting may destabilize the price level.

Our second reason can be stated more briefly than the first but it may well be more fundamental. There is increasing empirical evidence (see, in particular, [9]) that the creation of the Fed profoundly and permanently altered the pattern of interest rate movements in U.S. financial markets compared to what had existed before 1914. In particular, short-term interest rates have been much more persistent, in a statistical sense, since 1914 (see [9], pp. 361-2, for evidence). This was obviously true in the 1930s and 1940s when the System was pegging rates, but it is true in other periods as well. A number of economists now believe that smoothing short-term interest rate movements has been an important objective of monetary policy throughout the

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Fed's history (see [4], [5], and [8, pp. 224-6]) with the result that the funds rate now has approximately the characteristics of a random walk--i.e., the expected value of the funds rate in the future equals its current value.

This situation has important implications regarding the effect of policy-induced movements in the funds rate on longer-term interest rates. Specifically, if the funds rate follows a random walk, and one accepts the expectations theory of the term structure of interest rates, it follows that Fed adjustments of the funds rate will have significant impacts on longer maturity short rates such as three- and six-month T-bill rates, and perhaps even intermediate- and long-term bond rates. (Mankiw, Miron and Weil [9, pp. 362-363] use a simple expectations model of the term structure to show why movements in short-term interest rates have a greater effect on longer-term rates when the movements in short rates are persistent than when they are not.) Tim Cook and Tom Hahn [3] have provided detailed empirical evidence that funds rate movements in the late 1970s (prior to October 1979)--when the Fed was controlling the funds rate directly and unusually precisely--had a strong effect on the movements of longer-maturity short rates, a moderate effect on intermediate-term rates, and a small but measurable effect even on long-term bond rates. Mankiw, Miron and Weil [9, pp. 363-366] provide similar evidence using data on three- and six-month rates on various instruments.

Against this background, one can think of a number of reasons why the System might want to smooth interest rates. Marvin Goodfriend has suggested [5, pp. 16-18] that the System may smooth the funds rate in order to enhance the effect of its actions on longer-term rates in accordance with the points made above. ("Longer-term" rates in this context include six- and perhaps

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three-month rates.) According to this view, it then conducts stabilization policy through the impact of movements in longer-term rates on broader macroeconomic variables.

Whatever reason the Fed may have for smoothing interest rates, the evidence is pretty strong that we do in fact smooth them, which brings me to the main point in this regard. Goodfriend has shown (in [4]) that if the Fed is trying to smooth interest rates while pursuing its usual stabilization objectives, it may make the price level non-trend-stationary. In plainer language, Marvin's analysis implies that the Fed's evident tendency to smooth the funds rate (which is a function of using the funds rate rather than reserves as the operating instrument) may well preclude achieving long-term price stability. We recognize that Marvin's analysis is conducted at a fairly high level of abstraction and that further research might raise questions about his results and conclusions. Nonetheless, there is reason for concern when a carefully prepared study indicates that our operating procedure may be inconsistent with one of our major stated policy objectives. In any event this certainly seems to be another reason for taking another look at our procedures.

Reason 3: New evidence suggests reserve targeting may not increase and might even reduce the variability of longer-term interest rates.

The third reason for reopening research on operating procedures builds on some of the points made in discussing the second reason. As I noted above, a long-standing objection to shifting to a reserve instrument has been the fear that it would cause a sharp increase in the variability of very short-term interest rates--particularly the funds rate--which might be transmitted to longer-term rates. The volatility of longer rates in parts of the 1979-82

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period is sometimes cited as evidence supporting this view. I suspect that many of the current FOMC members would have this concern if a change in regimes were proposed.

The recent research I have already cited that finds a fundamental difference in the behavior of interest rates before and after the creation of the Fed is directly relevant to this issue. The recent paper by Mankiw, Miron and Weil [9] is especially germane. These authors make four basic points. First, as noted earlier, they provide empirical evidence that the process generating short-term interest rates in U.S. markets changed significantly with the creation of the Fed. In particular, shocks to short rates became much more persistent. Second, as also noted above, they use a simple term structure model to show that one would expect short-term interest rate movements to have a greater impact on longer-maturity rates in a regime characterized by persistent short rate movements than in one not so characterized. Intuitively, when short rates are generally mean reverting, market participants expect most shocks to short rates to be temporary and reversed by subsequent movements. Hence, current movements in short rates have only a small effect on expectations of future levels of short rates. Consequently, these movements have relatively small effects on the levels of longer-term rates. Third, using data that goes back to 1890, these authors provide empirical evidence that short rate movements did in fact have significantly smaller effects on longer-term rates before the Fed came into existence than after. In other words, an identifiable change in the regime governing interest rate behavior occurred with the creation of the Fed.

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Finally, the authors show empirically that market participants recognized the regime change and adjusted to it rapidly.

Mankiw, Miron and Weil's analysis suggests that if the variability of the funds rate were to increase with a future shift to a reserve targeting regime, the variability of longer-term rates, which are of greater importance to the general economy, might not. Past experience, as they say in the investment ads, is no guarantee of the future. But the Mankiw, Miron and Weil paper is well done and its results and their implications deserve serious consideration.

In any case, Don, these are the reasons why we believe it would be worthwhile for the Committee to take another look at the instrument question. If you agree, and the Committee decides to do it, we would be happy to help in any way we can.

Sincerely yours,



J. Alfred Broaddus, Jr.
Senior Vice President and
Director of Research

Enclosures

xc: Mr. Lindsey

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BOARD OF GOVERNORS
OF THE
FEDERAL RESERVE SYSTEM

Office Correspondence

Date August 14, 1991

To Federal Open Market Committee

Subject: Operational Paragraph of Directive

From Donald L. Kohn *DLK*
by N.B.

At the last Committee meeting, Chairman Greenspan mentioned that Governor Kelley had some suggestions regarding the treatment of the order of the factors to be considered in judging intermeeting adjustments to reserve conditions. A memo to the Chairman from Governor Kelley on this subject is attached as background for Committee discussion. At Governor Kelley's request, I have also attached a brief memo on how his various alternatives might be implemented. The final element in the package is a copy of the July directive, for reference.

Attachment

BOARD OF GOVERNORS
OF THE
FEDERAL RESERVE SYSTEM

Office Correspondence

Date May 20, 1991

To Chairman Greenspan

Subject: Operational Paragraph of

From Edward W. Kelley, Jr.

FOMC Domestic Policy Directive

The primary purpose of the Domestic Policy Directive is, of course, to instruct the Desk on its management of Open Market Operations. The further purpose of the Directive is to create an historical record of the deliberations of the Committee.

The key second sentence of the Operational Paragraph begins with a recitation of the areas of concern to the Committee. These areas of concern traditionally appear in rank order of the importance assigned to each by the Committee and have varied significantly over time. A summary of their recent history is attached. While the semantics have evolved somewhat, the order of concerns has not changed since June, 1988.

Earlier this spring, I suggested to the FOMC that the rank order currently in place might no longer be factually accurate. The notion received no support. Perhaps all members, other than myself, felt then and may still feel that this presentation continues to be accurate. If so, fine. However, other possible reasons for not considering any change may exist, and if this is the case, a review may be in order. Let me suggest considering the following options:

1. Assume this convention continues to be useful and should be retained, which leads to the further assumption that the recitation should be an accurate reflection of Committee discussion. Initiate a meaningful reopening of this list, based on the above, whenever appropriate.
2. Continue to use the existing language without active review.
3. If this convention has outlived its usefulness, consider the possibility of changing the structure of the operational paragraph to delete the recitation of the areas of concern to the Committee.

Attachment

EXHIBIT 6

Order in which Policy Variables Conditioning Reserve Pressure Appeared in the FOMC Directive

MEETINGS	FIRST	SECOND	THIRD	FOURTH	FIFTH
3/85 to 7/85	MONETARY AGGREGATES	STRENGTH OF EXPANSION	INFLATION	CREDIT MARKET CONDITIONS	EXCHANGE RATES
8/85 to 4/86	MONETARY AGGREGATES	STRENGTH OF EXPANSION	EXCHANGE RATES	INFLATION	CREDIT MARKET CONDITIONS
5/86	MONETARY AGGREGATES	STRENGTH OF EXPANSION	FINANCIAL MARKET CONDITIONS	EXCHANGE RATES	--
7/86 to 2/87	MONETARY AGGREGATES	STRENGTH OF EXPANSION	EXCHANGE RATES	INFLATION	CREDIT MARKET CONDITIONS
3/87	EXCHANGE RATES	MONETARY AGGREGATES	STRENGTH OF EXPANSION	INFLATION	CREDIT MARKET CONDITIONS
5/87	INFLATION	EXCHANGE RATES	MONETARY AGGREGATES	STRENGTH OF EXPANSION	--
7/87	INFLATION	MONETARY AGGREGATES	STRENGTH OF EXPANSION	--	--
8/87 to 9/87	INFLATION	STRENGTH OF EXPANSION	EXCHANGE RATES	MONETARY AGGREGATES	--
11/87	FINANCIAL MARKET CONDITIONS	STRENGTH OF EXPANSION	INFLATION	EXCHANGE RATES	MONETARY AGGREGATES
12/87 to 5/88	FINANCIAL MARKET CONDITIONS	STRENGTH OF EXPANSION	INFLATION	EXCHANGE RATES	MONETARY AGGREGATES
6/88	INFLATION	STRENGTH OF EXPANSION	EXCHANGE RATES	FINANCIAL MARKET CONDITIONS	MONETARY AGGREGATES
5/88 TO 11/88	INFLATION	STRENGTH OF EXPANSION	MONETARY AGGREGATES	EXCHANGE RATES	FINANCIAL MARKET CONDITIONS

OPERATIONAL PARAGRAPHS OF FOMC DIRECTIVES

June 29-30, 1988 through July 5-6, 1989

"... existing degree of pressure on reserve positions. Taking account of indications of inflationary pressures, the strength of the business expansion, developments in foreign exchange and domestic financial markets, and the behavior of the monetary aggregates, ..."

August 22, 1989 through November 13, 1990

"... existing degree of pressure on reserve positions. Taking account of progress toward price stability, the strength of the business expansion, the behavior of the monetary aggregates, and developments in foreign exchange and domestic financial markets, ..."

Dec. 18, 1990

"... existing degree of pressure on reserve positions, taking account of a possible change in the discount rate. Depending upon progress toward price stability, trends in economic activity, the behavior of the monetary aggregates, and developments in foreign exchange and domestic financial markets, ..."

Feb. 5-6, 1991 through March 26, 1991

"... existing degree of pressure on reserve positions. Depending upon progress toward price stability, trends in economic activity, the behavior of the monetary aggregates, and developments in foreign exchange and domestic financial markets, ..."

BOARD OF GOVERNORS
OF THE
FEDERAL RESERVE SYSTEM

Office Correspondence

Date August 14, 1991

To Governor Kelley

Subject: Implementation of Alternative Ap-

From Donald L. Kohn

proaches to Intermeeting Adjustment Wording

In your memo of May 20, 1991 you raised three possible alternatives for the wording of factors that might influence intermeeting changes in open market operations. The following are my suggestions for implementing each alternative you gave, along with some possibilities should the Committee wish to adopt new language general enough to apply in a variety of situations.

1. Retain wording; modify as appropriate.

Members seem reluctant to modify directive language at FOMC meetings. In part, this may be because such suggestions typically are made at the very end of the meeting, after the decisions have already been made about the stance of policy immediately following the meeting and about the "tilt" to the intermeeting language. One concern may be that delicately balanced compromises among members and between members and their consciences may come undone in the process of debating changes in language.

This reticence probably is exacerbated by the unexpected nature of most such proposals, so that Committee members have not had an opportunity to consider their ramifications ahead of time. While unanticipated suggestions cannot be ruled out, part of this problem

could be addressed by a discussion in the bluebook of possible variations in directive language. If the Committee so desired, the staff could put forward some alternatives in the bluebook, when it seemed appropriate. It would be most useful if Committee members themselves alerted the staff ahead of the meeting to possible changes they wanted considered, so that a discussion could be included in the bluebook, giving time for members to consider the pros and cons in a more deliberate way than can occur at the meeting.

2. Continue existing language without review or modification.

No implementing suggestions necessary.

3. Delete list of factors guiding intermeeting adjustments.

This suggestion could be implemented by simply deleting the "depending upon..." clauses in the directive. Thus, the July directive, for example, would read: "In the implementation of policy for the immediate future, the Committee seeks to maintain the existing degree of pressure on reserve positions. Somewhat greater reserve restraint or somewhat lesser reserve restraint might be acceptable over the intermeeting period. The contemplated reserve conditions..." The Committee discussion, which would be reflected in the policy record, would still provide background to the Chairman and the manager as to which sorts of information should receive the most weight in considering intermeeting adjustments, but any such instructions would not be included in the directive.

4. Adopt new language on factors guiding intermeeting adjustments that does not seem to raise questions about their order.

The suggestions below would substitute for the current list, and would seem to be sufficiently general to apply in a wide range of circumstances. One possibility, addressed in alternatives b and c below, would be to reference the Committee's long-term objectives as a context for evaluating short-run developments. Those objectives are already included in the directive, leading off the paragraph on long-run ranges.

References to the monetary aggregates are included in brackets. Some mention of the aggregates as guiding policy might be appropriate in light of the long-run ranges adopted and the sentence currently in the operational paragraph of the directive about expected growth over the current quarter.

a. "Depending on developments in the economy and financial markets, [including the behavior of the monetary aggregates [relative to their long-run ranges,]] somewhat greater reserve restraint...."

b. "In the context of the Committee's long-run objectives for price stability and sustainable economic growth, somewhat greater reserve restraint....in the intermeeting period, depending on developments in the economy and financial markets, [including the behavior of the monetary aggregates [relative to their long-run ranges,]]."

c. "Somewhat greater reserve restraint....over the inter-meeting period, depending on developments in the economy and financial markets, [including the behavior of the money supply.] evaluated in the context of progress toward the Committee's longer-run objectives of price stability and sustainable growth in output."



BOARD OF GOVERNORS
OF THE
FEDERAL RESERVE SYSTEM
WASHINGTON, D. C. 20551

STRICTLY CONFIDENTIAL (FR)
Class I - FOMC

TO: President Corrigan
Federal Reserve Bank of New York

DATE: July 3, 1991

FROM: Donald Kohn *DK*

At the meeting of the Federal Open Market Committee today, at which you were present, the Federal Reserve Bank of New York was authorized and directed, until otherwise directed by the Committee, to execute transactions in the System Account in accordance with the following domestic policy directive:

The information reviewed at this meeting suggests that economic activity has begun to recover from the recent recession. The unemployment rate rose to 6.9 percent in May, but total nonfarm payroll employment edged up and the average workweek posted a sizable gain. Manufacturing output has risen in recent months, led by appreciable increases in assemblies of motor vehicles. Consumer spending has been bolstered in part by an upturn in personal income. An increase in orders points to a firming in demand for business equipment, but nonresidential construction remains weak. Housing starts rose over April and May, and sales of new and existing homes continued to advance. The nominal U.S. merchandise trade deficit in April was somewhat below the average rate in the first quarter. Increases in consumer prices have been small in recent months.

• Most interest rates have risen slightly since the Committee meeting on May 14. The trade-weighted value of the dollar in terms of the other G-10 currencies increased substantially on balance over the inter-meeting period.

M2 grew at a moderate pace over May and June, while M3 changed little. For the year thus far, expansion of M2 and M3 has been in the middle portion of the Committee's ranges.

The Federal Open Market Committee seeks monetary and financial conditions that will foster price stability and promote sustainable growth in output. In furtherance of these objectives, the Committee reaffirmed at this meeting the ranges it had established in February for growth of M2 and M3 of 2-1/2 to 6-1/2 percent and 1 to 5 percent, respectively, measured from the fourth quarter of 1990 to the fourth quarter of 1991. The monitoring range for growth of total domestic nonfinancial debt also was maintained at 4-1/2 to 8-1/2 percent for the year. For 1992, on a tentative basis, the Committee agreed to use the same ranges as in 1991 for growth in each of the monetary aggregates and debt, measured from the fourth quarter of 1991 to the fourth quarter of 1992. With regard to M3, the Committee anticipated that the ongoing restructuring of thrift depository institutions would continue to depress the growth of this aggregate relative to spending and total credit. The behavior of the monetary aggregates will continue to be evaluated in the light of progress toward price level stability, movements in their velocities, and developments in the economy and financial markets.

In the implementation of policy for the immediate future, the Committee seeks to maintain the existing degree of pressure on reserve positions. Depending upon progress toward price stability, trends in economic activity, the behavior of the monetary aggregates, and developments in foreign exchange and domestic financial markets, somewhat greater reserve restraint or somewhat lesser reserve restraint might be acceptable in the intermeeting period. The contemplated reserve conditions are expected to be consistent with growth of M2 and M3 over the period from June through September at annual rates of about 5-1/2 and 3 percent, respectively.

No change was made in the Authorization for Domestic Open Market Operations.